AD-A048 678 AIR FORCE OCCUPATIONAL MEASUREMENT CENTER LACKLAND A--ETC F/G 5/9
BIOMEDICAL EQUIPMENT MAINTENANCE SPECIALIST AFSC 40350.(U)
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(9) Jul-Sep 77.

OCCUPATIONAL SURVEY REPORT.

ELECTRONIC PRINCIPLES

(2) D.S.

(6) BIOMEDICAL EQUIPMENT MAINTENANCE SPECIALIST

AFSC 40350.

(14) AFPT-90-403-222

(11) 26 Oct 77

(12) 52 p.

OCCUPATIONAL SURVEY BRANCH
USAF OCCUPATIONAL MEASUREMENT CENTER
LACKLAND AFB TEXAS 78236

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PREFACE

This report presents a summary of the results of a detailed Air Force Electronic Principles Survey of the Biomedical Equipment Maintenance Specialist, AFSC 40350.

The Electronic Principles Inventory (EPI) was developed by Major Thomas J. O'Connor and Mr. Hendrick W. Ruck and the survey data were analyzed by Captain John X. Olivo. All are members of the Occupational Survey Branch, USAF Occupational Measurement Center, Lackland AFB, Texas.

Computer programs for analyzing the data were designed by Dr. Raymond E. Christal, Occupational and Manpower Research Division, Air Force Human Resources Laboratory (AFHRL), and were written by the Project Analysis and Programming Branch, Computational Sciences Division, AFHRL.

Distribution of this report is made upon request to the USAF Occupational Measurement Center, attention of the Chief, Occupational Survey Branch (OMY), Lackland AFB, Texas 78236.

This report has been reviewed and is approved.

JAMES A. TURNER, JR., Colonel, USAF
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ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT
BIOMEDICAL EQUIPMENT MAINTENANCE SPECIALIST
AFSC 40350

INTRODUCTION

This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Biomedical Equipment Maintenance Specialist (AFSC 40350). The data for this report were collected during the period July through September 1977.

This report describes: (1) development and administration of the survey instrument; and (2) electronic principles used by DAFSC 5-skill level personnel both CONUS and overseas and assigned to selected major commands.

DEVELOPMENT OF THE ELECTRONIC PRINCIPLES INVENTORY (EPI)

The EPI was developed by personnel from the Occupational Survey Branch who were well qualified in theoretical physics and electronics, as well as in task analysis and survey development. Over 300 maintenance personnel from SAC, TAC, ADC, MAC, and AFCS participated in the development of the inventory. Representing the five ATC training centers, electronics experts who averaged 12 years of maintenance experience and four years of electronic principles instruction experience spent several weeks refining the EPI. In addition, personnel at the Electrical Engineering Department of the USAF Academy and the Air Force Human Resources Laboratory were consulted during the development of the inventory.

The final version of the EPI used in this survey contained 1,257 items in 62 subject matter areas covering all electronic principles training given at the five ATC technical training centers. Table 1 lists the 62 subject areas.

ADMINISTRATION

The Electronic Principles Inventory was administered by mail to AFSC 40350 airmen worldwide. Responses from 104 individuals represented 48 percent of the total of all AFSC 40350 personnel. Table 2 shows the percentage distribution by major command of the survey incumbents.

TABLE 1

EPI SUBJECT AREAS

SEQUENCE OF SUBJECT AREAS	SUBJECT AREA TITLE	BEGINNING ITEM NUMBER	GPSUM PAGE NUMBER
1	MATHEMATICS	A1	2
2	DIRECT CURRENT AND VOLTAGE	A15	2
3	RESISTANCE	A24	2
4	MULTIMETER USES	B52	3
5	ALTERNATING CURRENT	B61	4
6	INDUCTORS AND INDUCTIVE REACTANCE	B67	4
7	CAPACITORS AND CAPACITIVE REACTANCE	C92	5
8	TRANSFORMERS	C128	6
9	MAGNETISM	C171	7
10	RCL CIRCUITS	D185	8
11	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)	D229	10
12	FILTERS	D239	10
13	COUPLING	E261	11
14	SOLDERING	E273	11
15	RELAYS	E295	12
16	MICROPHONES	F314	12
17	SPEAKERS	F327	13
18	OSCILLOSCOPES	F342	13
19	SEMICONDUCTOR DIODES	G354	13
20	TRANSISTORS	G404	15
21	TRANSISTOR AMPLIFIERS	G428	16
22	SOLID-STATE SPECIAL PURPOSE DEVICES	H477	19
23	POWER SUPPLIES	H483	19
24	OSCILLATORS	H512	19
25	MULTIVIBRATORS	I539	20
26	LIMITERS AND CLAMPERS	I555	21
27	ELECTRON TUBES	I565	21
28	ELECTRON TUBE AMPLIFIERS AND CIRCUITS	J609	22
29	SPECIAL PURPOSE ELECTRON TUBES	J616	23
30	HETERODYNING, MODULATION, AND DEMODULATION	J632	23
31	AM SYSTEMS	K638	23
32	FM SYSTEMS	K666	24

TABLE 1 (CONTINUED)

EPI SUBJECT AREAS

SEQUENCE OF SUBJECT AREAS	SUBJECT AREA TITLE	BEGINNING ITEM NUMBER	GPSUM PAGE NUMBER
33	NUMBERING SYSTEMS	K685	25
34	LOGIC FUNCTIONS	L695	25
35	BOOLEAN EQUATIONS	L708	26
36	COUNTERS	L733	27
37	TIMING CIRCUITS	M757	27
38	USE OF SIGNAL GENERATORS	M769	28
39	MOTORS AND GENERATORS	M779	28
40	METER MOVEMENTS	N808	29
41	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS	N818	29
42	WAVESHAPING CIRCUITS	N834	30
43	SINGLE SIDEBAND SYSTEMS	0845	30
44	PULSE MODULATION SYSTEMS	0875	31
45	ANTENNAS	0914	32
46	TRANSMISSION LINES	P953	34
47	WAVEGUIDES AND CAVITY RESONATORS	P984	35
48	MICROWAVE AMPLIFIERS AND OSCILLATORS	PT034	37
49	REGISTERS	Q1110	39
50	STORAGE DEVICES	Q1117	40
51	DIGITAL TO ANALOG CONVERTERS	Q1126	40
52	PHANTASTRONS	Q1140	41
53	SCHMITT TRIGGERS	R1141	41
54	CABLE FABRICATION	R1144	41
55	INPUT/OUTPUT DEVICES	S1146	41
56	PHOTO SENSITIVE DEVICES	S1149	41
57	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)	S1150	41
58	INFRARED	T1159	41
59	LASERS	T1186	42
60	DISPLAY TUBES	T1220	43
61	PROGRAMMING	U1234	43
62	DB AND POWER RATIOS	U1255	44

TABLE 2

COMMAND REPRESENTATION OF SURVEY SAMPLE

	40350	
COMMAND	PERCENT ASSIGNED	PERCENT OF SAMPLE
ATC	18	19
MAC	16	17
SAC	14	14
TAC	13	7
AFSC	11	16
USAFE	9	6
PACAF	7	6
OTHER	12	15
TOTAL	100	100

Total Assigned - 215
Total Sampled - 104
Percent Sampled - 48

PRESENTATON OF RESULTS

Personnel responded "yes" or "no" to the 1,257 electronic principles questions as related to their present job. A Group Summary (GPSUM) computer printout is provided in the Appendix portion of this report. Page 1 of the GPSUM lists the ten selected groups identified for this report. Pages 2-44 show the percentage of the incumbents responding to the EPI items. The computer program results display the percent members answering "yes" to the subject area questions. The reader can locate a specific subject area by referring to the Appendix page number as listed in Table 1. For example, the Transformers area results are given on page 6 of the GPSUM. The percentage of survey respondents indicating use of specific electronic principles ranged from high in areas such as Soldering (p. 11) and Relays (p. 12) to low in areas such as Lasers (p. 42) and Programming (p. 43). Additional AFSC 40350 data can be obtained upon request to the Chief, Occupational Survey Branch (OMY).

APPENDIX

TABULATION OF ELECTRONIC PRINCIPLES UTILIZATION DATA FOR SELECTED GROUPS
IN THE 403X0 CAREER FIELD.

REPORTS ON THE FOLLOWING GROUPS WERE REQUESTED

GROUP IDENTITY = SPC001	ALL AIRMEN DAFSC 40350	CONTAINING	104 MEMBERS.
GROUP IDENTITY = SPC002	ALL AIRMEN DAFSC 40350 STATIONED IN CONUS	CONTAINING	91 MEMBERS.
GROUP IDENTITY = SPC003	ALL AIRMEN DAFSC 40350 STATIONED OVERSEAS	CONTAINING	13 MEMBERS.
GROUP IDENTITY = SPC004	ALL AIRMEN DFASC 40350 ASSIGNED TO ATC	CONTAINING	20 MEMBERS.
GROUP IDENTITY = SPC005	ALL AIRMEN DAFSC 40350 ASSIGNED TO MAC	CONTAINING	18 MEMBERS.
GROUP IDENTITY = SPC006	ALL AIRMEN DAFSC 40350 ASSIGNED TO PACAF	CONTAINING	6 MEMBERS.
GROUP IDENTITY = SPC007	ALL AIRMEN DAFSC 40350 ASSIGNED TO SAC	CONTAINING	14 MEMBERS.
GROUP IDENTITY = SPC008	ALL AIRMEN DAFSC 40350 ASSIGNED TO AFSC	CONTAINING	17 MEMBERS.
GROUP IDENTITY = SPC009	ALL AIRMEN DAFSC 40350 ASSIGNED TO TAC	CONTAINING	7 MEMBERS.
GROUP IDENTITY = SPC010	ALL AIRMEN DAFSC 40350 ASSIGNED TO USAFE	CONTAINING	6 MEMBERS.

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
A	1	A1-01 IN YOUR PRESENT JOB, DO YOU USE INSTRUMENTS, SUCH AS METERS OR OSCILLOSCOPES, IN WHICH IT IS NECESSARY TO AMPLIFY OR ATTENUATE VOLTAGE, RESISTANCE, ETC., BY POWERS OF 10.	93	93	92	100	89	83	93	94	71	100	MATHEMATICS
A	2	A1-02 DO YOU USE PUBLICATIONS, SUCH AS A TECHNICAL ORDERS OR MAINTENANCE MANUALS, IN WHICH IT IS NECESSARY FOR YOU TO MULTIPLY OR DIVIDE BY A POWER OF 10 BEFORE YOU CAN APPLY THE INFORMATION FROM THE PUBLICATION IN A USEFUL WAY ON THE JOB.	58	57	62	40	67	67	57	65	29	67	
A	3	A1-03 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS.	70	70	69	65	72	67	86	59	57	83	
A	4	A1-04 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY.	39	37	54	35	44	67	43	29	14	50	
A	5	A1-05 DO YOU SOLVE FOR UNKNOWN QUANTITIES.	54	53	62	55	61	67	64	53	14	67	
A	6	A1-06 DO YOU CONVERT NUMBERS TO LOGARITHMS.	22	24	8	25	39	0	21	6	14	17	
A	7	A1-07 DO YOU USE LOGARITHM TABLES IN ANY TYPE OF CALCULATIONS.	23	24	15	30	39	17	21	0	14	17	
A	8	A1-08 DO YOU SOLVE QUADRATIC EQUATIONS.	23	21	38	25	17	33	29	24	0	50	
A	9	A1-09 DO YOU USE THE NATURAL SYSTEM OF LOGARITHMS.	13	13	8	20	11	0	14	0	0	17	
A	10	A1-10 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES.	33	34	23	35	44	17	36	35	0	33	
A	11	A1-11 DO YOU WORK WITH TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT.	29	27	38	30	39	33	21	29	0	50	
A	12	A1-12 DO YOU DETERMINE AREAS OF PLANE FIGURES.	23	24	15	35	22	17	29	24	0	17	
A	13	A1-13 DO YOU SOLVE OR USE SIMULTANEOUS EQUATIONS.	19	19	23	10	17	50	36	29	0	0	
A	14	A1-14 DO YOU SOLVE OR USE PROPORTIONS.	46	46	46	35	50	50	71	41	14	50	
A	15	A2-01 DO YOU USE THE TERM VOLTAGE OR VOLT (V).	99	99	100	100	100	100	100	100	86	100	
A	16	A2-02 DO YOU USE THE TERM ELECTROMOTIVE FORCE (EMF).	69	67	85	70	78	67	64	65	29	100	
A	17	A2-03 DO YOU USE THE TERM OHM.	99	99	100	100	100	100	100	100	86	100	DIRECT CURRENT AND VOLTAGE
A	18	A2-04 DO YOU USE THE TERM ION.	60	59	62	50	72	33	64	65	0	83	
A	19	A2-05 DO YOU USE THE TERM DYNE.	38	38	38	35	50	17	43	24	14	50	
A	20	A2-06 DO YOU USE THE TERM AMPERE.	97	97	100	100	100	100	93	100	86	100	
A	21	A2-07 DO YOU USE THE TERM NEUTRON.	49	48	54	65	56	17	43	29	14	83	
A	22	A2-08 DO YOU USE THE TERM COULOMB.	50	48	62	45	67	33	50	41	14	83	
A	23	A2-09 DO YOU USE THE TERM PROTON.	49	49	46	55	61	17	50	35	14	67	
A	24	A3-01 DO YOU WORK WITH RESISTORS IN YOUR PRESENT JOB.	85	84	92	100	83	100	79	71	100	83	
A	25	A3-02 DO YOU INSPECT RESISTORS.	97	98	92	100	94	83	100	100	86	100	
A	26	A3-03 DO YOU CLEAN RESISTORS.	88	86	92	90	89	83	79	82	86	100	
A	27	A3-04 DO YOU ADJUST RESISTORS.	97	97	100	100	94	100	93	100	86	100	
A	28	A3-05 DO YOU CHECK OHMIC VALUE OR RESISTORS.	99	99	100	100	100	100	100	100	86	100	RESISTANCE
A	29	A3-06 DO YOU REMOVE OR REPLACE RESISTORS.	99	100	92	100	100	100	100	100	100	83	
A	30	A3-07 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASKS YOU PERFORM.	54	51	77	40	50	83	64	59	29	67	
A	31	A3-08 DO YOU USE OR REFER TO RESISTOR SYMBOLS SUCH AS FIXED RESISTOR SYMBOLS OR TAPPED RESISTOR SYMBOLS.	99	99	100	100	100	100	100	100	100	100	
A	32	A3-09 DO YOU IDENTIFY OR CLASSIFY THE RESISTORS YOU WORK WITH AS CARBON, FIXED WIRE, SLIDE TAP, RHEOSTAT, OR POTENTIOMETER.	99	99	100	100	100	100	100	100	100	100	
A	33	A3-10 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE.	100	100	100	100	100	100	100	100	100	100	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
A	34	A3-11 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE.	95	97	85	90	100	83	100	100	100	83	
A	35	A3-12 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE.	34	33	38	30	39	17	36	16	43	50	
A	36	A3-13 DO YOU MAKE DECISIONS IN WHICH YOU MUST DETERMINE HOW TWO OR MORE BATTERIES MUST BE CONNECTED TOGETHER TO ACHIEVE A SPECIFIC VOLTAGE.	85	85	85	90	83	83	100	65	71	83	
A	37	A3-14 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES	100	100	100	100	100	100	100	100	100	100	
A	38	A3-15 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES RESISTIVE CIRCUITS.	89	90	85	95	94	83	100	76	86	83	
A	39	A3-16 DO YOU CALCULATE TOTAL CURRENT FOR SERIES RESISTIVE CIRCUITS.	84	85	77	95	83	83	93	71	86	67	
A	40	A3-17 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES RESISTIVE CIRCUITS.	91	91	92	95	100	100	93	82	100	83	
A	41	A3-18 DO YOU CALCULATE POWER DISSIPATION FOR SERIES RESISTIVE CIRCUITS.	73	74	69	70	89	83	79	65	57	50	
A	42	A3-19 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES PARALLEL RESISTIVE CIRCUITS.	85	85	85	90	89	83	93	71	71	83	
A	43	A3-20 DO YOU CALCULATE TOTAL CURRENT FOR SERIES PARALLEL RESISTIVE CIRCUITS.	80	80	77	90	83	83	86	65	71	67	
A	44	A3-21 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	88	87	92	90	100	100	86	76	86	83	
A	45	A3-22 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	80	80	77	90	78	83	93	71	71	67	
A	46	A3-23 DO YOU CALCULATE POWER DISSIPATION FOR SERIES PARALLEL RESISTIVE CIRCUITS.	70	70	69	70	78	83	79	65	57	50	
A	47	A3-24 DO YOU CALCULATE TOTAL RESISTANCE FOR PARALLEL RESISTIVE CIRCUITS.	82	81	85	85	83	83	93	71	71	83	
A	48	A3-25 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RESISTIVE CIRCUITS.	79	79	77	90	83	83	86	65	71	67	
A	49	A3-26 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR PARALLEL RESISTIVE CIRCUITS.	86	85	92	85	89	100	93	76	86	83	
A	50	A3-27 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR PARALLEL RESISTIVE CIRCUITS.	78	78	77	90	78	83	86	71	71	67	
A	51	A3-28 DO YOU CALCULATE POWER DISSIPATION FOR PARALLEL RESISTIVE CIRCUITS.	69	69	69	70	78	83	79	65	57	50	
B	52	B1-01 DO YOU MEASURE RESISTANCE.	97	97	100	95	94	100	100	94	100	100	
B	53	B1-02 DO YOU REPAIR OHMMETERS.	17	15	31	20	6	17	14	24	0	50	
B	54	B1-03 DO YOU MEASURE VOLTAGE.	98	98	100	95	94	100	100	100	100	100	
B	55	B1-04 DO YOU REPAIR VOLTMETERS.	15	15	15	10	11	0	21	24	0	33	MULTIMETER
B	56	B1-05 DO YOU REPAIR AMMETERS.	13	14	8	10	11	0	21	24	0	17	USES
B	57	B1-06 DO YOU MEASURE CURRENT.	95	95	100	95	94	100	100	88	100	100	
B	58	B1-07 DO YOU USE MULTIMETERS.	99	99	100	100	94	100	100	100	100	100	
B	59	B1-08 DO YOU DIRECTLY USE A QUANTITY OF CHARGE CALLED A COULOMB.	18	19	15	15	6	0	43	6	0	33	
B	60	B1-09 DO YOU READ SCHEMATICS.	98	98	100	95	94	100	100	100	100	100	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

			OY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
B	61	B2-01	DO YOU USE OR RFFER TO THE TERM EFFECTIVE VOLTAGE (RMS).	91	90	100	85	94	100	93	88	86	100	ALTERNATING CURRENT
B	62	B2-02	DO YOU USE OR REFER TO THE TERM PEAK TO PEAK VOLTAGE.	90	90	92	90	89	100	100	82	86	83	
B	63	B2-03	DO YOU USE OR REFER TO THE TERM AVERAGE VOLTAGE (DC).	85	82	100	85	89	100	79	76	57	100	
B	64	B2-04	DO YOU USE OR REFER TO THE TERM WAVE LENGTH.	81	79	92	85	89	100	93	71	43	83	
B	65	B2-05	DO YOU USE OR REFER TO THE TERM FREQUENCY.	94	93	100	95	94	100	100	82	100	100	
B	66	B2-06	DO YOU USE OR REFER TO THE TERM INSTANTANEOUS VALUE.	49	48	54	45	50	50	64	41	29	50	
B	67	B3-01	DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB.	79	79	77	80	78	83	86	71	71	67	
B	68	B3-02	DO YOU INSPECT INDUCTORS.	81	81	77	75	94	67	86	76	86	83	INDUCTORS AND INDUCTIVE REACTANCE
B	69	B3-03	DO YOU CLEAN INDUCTORS.	68	69	62	65	94	50	79	47	86	67	
B	70	B3-04	DO YOU ADJUST INDUCTORS.	77	76	85	70	94	83	93	59	86	83	
B	71	B3-05	DO YOU REMOVE OR REPLACE INDUCTORS.	81	80	85	70	89	83	93	76	86	83	
B	72	B3-06	DO YOU USE OR REFER TO INDUCTANCE.	81	81	77	85	83	83	86	71	86	67	
B	73	B3-07	DO YOU USE OR REFER TO HENRIES.	71	74	54	70	83	50	64	71	86	67	
B	74	B3-08	DO YOU USE OR REFER TO INDUCTIVE REACTANCE.	75	76	69	75	83	67	71	71	86	67	
B	75	B3-09	DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS.	22	24	8	15	17	0	29	12	43	17	
B	76	B3-10	DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS.	28	31	8	20	44	0	29	12	43	17	
B	77	B3-11	DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS	33	35	15	25	50	0	29	18	57	33	
B	78	B3-12	DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE NUMBER OF TURNS OF THE COIL.	29	30	23	30	39	33	14	18	29	17	
B	79	B3-13	DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE CROSS SECTIONAL AREA OF THE CORE.	22	23	15	25	28	17	14	6	29	17	
B	80	B3-14	DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO ITS LENGTH.	22	22	23	20	33	17	14	6	29	33	
B	81	B3-15	DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE PERMEABILITY OF THE CORE MATERIAL.	28	30	15	25	39	17	21	18	43	17	
B	82	B3-16	DO YOU CALCULATE INDUCTANCE FOR PARTICULAR INDUCTORS USING FORMULAS.	28	27	31	20	22	33	29	24	29	33	
B	83	B3-17	DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTANCE IN SERIES.	31	34	8	30	33	17	29	29	43	0	
B	84	B3-18	DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN PARALLEL.	31	34	8	30	33	17	29	29	43	0	
B	85	B3-19	DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES-PARALLEL CIRCUITS.	32	34	15	30	33	17	29	29	43	17	
B	86	B3-20	DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC INDUCTOR CIRCUITS.	55	54	62	55	67	83	50	47	57	33	
B	87	B3-21	DO YOU CALCULATE INDUCTIVE REACTANCE.	41	45	15	35	61	33	36	41	43	0	
B	88	B3-22	DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO FREQUENCY.	47	47	46	35	61	50	57	24	57	50	
B	89	B3-23	DO YOU WORK WITH POWER INDUCTORS.	61	60	62	65	61	83	64	59	43	50	
B	90	B3-24	DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS.	68	68	69	65	78	83	86	59	43	67	
B	91	B3-25	DO YOU WORK WITH RADIO FREQUENCY INDUCTORS.	62	59	77	55	67	83	71	59	43	83	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	CAPACITORS AND CAPACITIVE REACTANCE
C 92	C1-01 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS IN YOUR PRESENT JOB.	82	84	69	80	78	83	79	94	100	67	
C 93	C1-02 DO YOU INSPECT CAPACITORS.	97	99	85	100	94	67	100	100	100	100	
C 94	C1-03 DO YOU CLEAN CAPACITORS.	78	78	77	85	83	50	86	59	86	100	
C 95	C1-04 DO YOU ADJUST CAPACITORS.	88	87	92	90	89	83	93	82	86	100	
C 96	C1-05 DO YOU TEST CAPACITORS.	96	97	92	100	94	83	100	94	100	100	
C 97	C1-06 DO YOU DISCHARGE CAPACITORS.	96	97	92	95	100	83	100	100	86	100	
C 98	C1-07 DO YOU REMOVE OR REPLACE CAPACITORS.	99	99	100	100	100	100	100	100	100	100	
C 99	C1-08 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE.	36	36	31	30	44	17	50	18	29	33	
C 100	C1-09 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC.	13	12	15	15	6	0	14	12	14	17	
C 101	C1-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS.	93	95	85	90	100	83	93	100	86	83	
C 102	C1-11 DO YOU USE OR REFER TO CAPACITANCE.	92	92	92	80	100	100	93	94	100	83	
C 103	C1-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT	28	27	31	25	33	17	43	6	29	33	
C 104	C1-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS	84	85	77	75	100	83	79	88	86	67	
C 105	C1-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE	70	70	69	65	89	67	79	59	43	67	
C 106	C1-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES	55	57	38	45	61	33	64	53	71	33	
C 107	C1-16 DO YOU WORK WITH CAPACITORS IN DC CIRCUITS	96	96	100	100	89	100	93	94	100	100	
C 108	C1-17 DO YOU WORK WITH CAPACITORS IN AC CIRCUITS	98	98	100	100	100	100	100	100	86	100	
C 109	C1-18 DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC	95	95	100	100	94	100	93	88	86	100	
C 110	C1-19 DO YOU WORK WITH CAPACITORS IN DON'T REMEMBER WHICH CIRCUITS	13	12	23	20	11	17	29	6	0	33	
C 111	C1-20 DO YOU CALCULATE CAPACITANCE FOR PARTICULAR CAPACITORS USING FORMULAS	38	38	31	35	50	33	43	24	29	33	
C 112	C1-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT	21	22	15	20	28	0	36	6	14	33	
C 113	C1-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS	22	23	15	25	28	0	36	6	14	33	
C 114	C1-23 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES	46	48	31	40	50	33	71	47	29	33	
C 115	C1-24 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN PARALLEL	48	51	31	40	56	33	71	47	29	33	
C 116	C1-25 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES-PARALLEL CIRCUITS	47	49	31	40	50	33	71	47	29	33	
C 117	C1-26 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY APPEARS TO DO SO	59	62	38	60	72	33	79	47	57	33	
C 118	C1-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS	58	59	46	55	89	50	71	47	29	33	
C 119	C1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO FREQUENCY	45	48	23	40	67	17	79	35	29	33	
C 120	C1-29 DO YOU CALCULATE CAPACITIVE REACTANCE	38	44	0	35	61	0	64	24	29	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
C 121 C1-30 DO YOU WORK WITH ROTOR-STATOR (VARIABLE) CAPACITORS	81	79	92	80	72	83	86	88	71	100	
C 122 C1-31 DO YOU WORK WITH COMPRESSION (TRIMMER) CAPACITORS	71	71	69	60	83	67	79	82	57	67	
C 123 C1-32 DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS	94	93	100	100	83	100	93	94	86	100	
C 124 C1-33 DO YOU WORK WITH PAPER (FIXED) CAPACITORS	92	92	92	100	83	83	93	94	86	100	
C 125 C1-34 DO YOU WORK WITH MICA (FIXED) CAPACITORS	88	88	92	95	83	83	93	88	71	100	
C 126 C1-35 DO YOU WORK WITH CERAMIC (FIXED) CAPACITORS	91	91	92	95	89	83	93	94	86	100	
C 127 C1-36 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF CAPACITORS	14	15	8	30	11	0	29	0	14	17	
C 128 C2-01 DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB	78	78	77	90	72	83	71	65	86	83	
C 129 C2-02 DO YOU INSPECT TRANSFORMERS	93	95	85	100	89	67	86	94	100	100	
C 130 C2-03 DO YOU CLEAN TRANSFORMERS	73	75	62	80	78	33	79	59	71	83	
C 131 C2-04 DO YOU ADJUST TRANSFORMERS	72	75	54	80	78	67	79	76	57	50	
C 132 C2-05 DO YOU TROUBLESHOOT TRANSFORMERS	92	93	85	100	94	83	86	88	86	83	TRANSFORMERS
C 133 C2-06 DO YOU REMOVE OR REPLACE COMPLETE TRANSFORMERS	93	92	100	85	94	100	86	94	100	100	
C 134 C2-07 DO YOU REMOVE OR REPLACE TRANSFORMER PARTS, SUCH AS THE PRIMARY WINDING	16	18	8	20	17	0	21	6	0	17	
C 135 C2-08 DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTION AND MUTUAL INDUCTANCE (M)	19	21	8	25	17	0	29	12	14	17	
C 136 C2-09 DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M	18	20	8	20	22	0	21	12	14	17	
C 137 C2-10 DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS	28	29	23	25	33	17	36	12	29	33	
C 138 C2-11 DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS	45	45	46	55	61	67	50	29	29	33	
C 139 C2-12 DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS	27	30	8	25	50	17	36	18	14	0	
C 140 C2-13 DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS	15	16	8	25	17	0	21	6	0	17	
C 141 C2-14 DO YOU WORK WITH AUTOTRANSFORMERS	91	92	85	95	89	67	86	94	100	100	
C 142 C2-15 DO YOU WORK WITH POWER TRANSFORMERS	91	91	92	95	89	83	86	88	100	100	
C 143 C2-16 DO YOU WORK WITH AUDIO TRANSFORMERS	77	79	62	80	83	67	86	82	57	67	
C 144 C2-17 DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS	70	70	69	75	67	83	79	71	57	67	
C 145 C2-18 DO YOU WORK WITH DON'T REMEMBER WHAT TYPE OF TRANSFORMERS	10	10	8	35	6	0	7	0	0	17	
C 146 C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE	94	93	100	90	94	100	93	94	100	100	
C 147 C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE	86	86	85	85	72	67	93	88	100	100	
C 148 C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES	87	88	77	85	94	83	86	76	100	67	
C 149 C2-22 DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO	45	48	23	50	39	33	64	35	57	17	
C 150 C2-23 DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO	80	79	85	80	78	83	86	65	86	83	
C 151 C2-24 DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS FOR TRANSFORMERS	92	92	92	90	94	83	93	94	86	100	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
C 152	C2-25 DO YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS	88	87	92	90	83	83	86	94	71	100	
C 153	C2-26 DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	91	91	92	90	94	83	86	94	86	100	
C 154	C2-27 DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	92	92	92	90	94	83	93	94	86	100	
C 155	C2-28 DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	71	70	77	80	78	50	86	53	57	100	
C 156	C2-29 DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	72	71	77	80	83	50	86	53	57	100	
C 157	C2-30 DO YOU REFER TO COMBINATIONS OF THE ABOVE SCHEMATIC SYMBOLS FOR TRANSFORMERS	80	82	62	85	94	50	86	76	86	67	
C 158	C2-31 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS	61	63	46	75	67	33	57	65	43	50	
C 159	C2-32 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH	42	45	23	40	56	17	50	29	57	33	
C 160	C2-33 DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO	53	55	38	55	61	33	71	35	57	50	
C 161	C2-34 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS	72	74	62	80	83	50	79	71	57	67	
C 162	C2-35 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS	47	47	46	55	56	0	57	24	57	83	
C 163	C2-36 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS	38	38	31	50	39	0	43	18	57	50	
C 164	C2-37 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS	71	70	77	55	94	67	64	65	71	83	
C 165	C2-38 DO YOU INSPECT THREE PHASE TRANSFORMERS	62	63	54	60	67	50	57	59	71	50	
C 166	C2-39 DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS	42	42	46	35	56	50	43	29	43	33	
C 167	C2-40 DO YOU ADJUST THREE PHASE TRANSFORMERS	36	36	31	25	39	17	43	35	43	33	
C 168	C2-41 DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS	59	57	69	55	67	67	50	59	71	67	
C 169	C2-42 DO YOU REMOVE OR REPLACE COMPLETE THREE PHASE TRANSFORMERS	49	48	54	55	56	67	43	59	29	33	
C 170	C2-43 DO YOU REMOVE OR REPLACE THREE PHASE TRANSFORMER PARTS SUCH AS WINDINGS	20	22	8	25	28	0	21	6	43	0	
C 171	C3-01 DO YOU USE OR REFER TO PERMANENT MAGNETS	72	73	69	60	94	67	86	65	86	67	
C 172	C3-02 DO YOU USE OR REFER TO TEMPORARY MAGNETS	58	59	46	45	78	33	86	41	57	50	
C 173	C3-03 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS	35	35	31	40	39	17	36	24	14	33	MAGNETISM
C 174	C3-04 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS	29	29	31	40	28	17	29	18	14	33	
C 175	C3-05 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS	31	32	23	50	33	0	43	6	14	33	
C 176	C3-06 DO YOU USE OR REFER TO RESIDUAL MAGNETISM	43	45	31	40	67	17	50	24	43	33	
C 177	C3-07 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX	50	51	46	50	72	50	36	41	57	33	
C 178	C3-08 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM	17	16	23	25	22	0	14	0	14	33	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
C 179	C3-09 DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM	16	15	23	20	22	0	7	0	0	33	
C 180	C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION	48	48	46	55	56	33	64	24	43	50	
C 181	C3-11 DO YOU USE OR REFER TO FLUX DENSITY	27	27	23	30	39	0	36	6	14	33	
C 182	C3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT FOR MAGNETIC POLES, LIKE POLES REPEL AND UNLIKE POLES ATTRACT	68	69	62	60	83	50	79	59	100	67	
C 183	C3-13 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE DIRECTION OF MAGNETIC FIELDS ABOUT STRAIGHT WIRES	38	37	46	35	50	33	36	24	14	67	
C 184	C3-14 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE NORTH POLE OF A CURRENT CARRYING COIL	38	36	46	30	50	33	43	24	14	67	
D 185	D1-01 DO YOU WORK WITH RC, LR, RCL CIRCUITS IN YOUR PRESENT JOB	63	66	38	65	83	50	57	71	71	33	
D 186	D1-02 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS	35	34	38	35	39	33	21	35	29	50	RCL CIRCUITS
D 187	D1-03 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS	25	27	8	30	33	17	21	18	14	0	
D 188	D1-04 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS	25	26	15	20	44	0	21	18	0	33	
D 189	D1-05 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS	27	29	15	25	44	0	21	24	0	33	
D 190	D1-06 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS	25	26	15	25	44	0	14	18	0	33	
D 191	D1-07 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS	56	58	38	55	67	67	57	53	43	17	
D 192	D1-08 DO YOU USE OR REFER TO TRUE POWER (PT) WHEN WORKING WITH RCL CIRCUITS	42	45	23	45	61	50	43	41	0	0	
D 193	D1-09 DO YOU USE OR REFER TO MAXIMUM POWER (PM) WHEN WORKING WITH RCL CIRCUITS	40	43	23	45	44	50	43	47	0	0	
D 194	D1-10 DO YOU USE OR REFER TO AVERAGE POWER (PAVE) WHEN WORKING WITH RCL CIRCUITS	38	40	23	45	39	50	36	47	0	0	
D 195	D1-11 DO YOU USE OR REFER TO APPARENT POWER (PA) WHEN WORKING WITH RCL CIRCUITS	37	38	23	50	44	50	36	29	0	0	
D 196	D1-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS	38	40	31	40	50	33	36	29	14	33	
D 197	D1-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS	58	60	38	60	67	50	57	59	57	33	
D 198	D1-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS	56	57	46	55	83	50	43	59	14	50	
D 199	D1-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS	50	52	38	50	72	50	50	47	14	33	
D 200	D1-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS	63	63	62	60	72	67	64	71	43	67	
D 201	D1-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS	33	36	8	40	44	17	36	24	14	0	
D 202	D1-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS	47	48	38	60	67	50	43	29	14	33	
D 203	D1-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS	37	40	15	50	50	17	36	24	14	17	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010
D 204 D1-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS	66	69	46	75	89	50	57	65	57	33
D 205 D1-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS	23	24	15	25	39	0	21	24	0	33
D 206 D1-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS	28	30	15	40	28	0	21	24	14	33
D 207 D1-23 DO YOU CALCULATE TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS	35	36	23	40	44	33	36	29	14	0
D 208 D1-24 DO YOU CALCULATE PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS	23	25	8	35	28	0	7	12	29	17
D 209 D1-25 DO YOU CALCULATE TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS	34	35	23	30	44	33	36	29	29	0
D 210 D1-26 DO YOU CALCULATE IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS	21	23	8	25	28	0	14	18	29	17
D 211 D1-27 DO YOU CALCULATE APPARENT POWER (PA) FOR SERIES RCL CIRCUITS	28	30	15	40	28	33	36	29	0	0
D 212 D1-28 DO YOU CALCULATE TRUE POWER (PT) FOR SERIES RCL CIRCUITS	30	33	8	35	39	17	43	35	0	0
D 213 D1-29 DO YOU CALCULATE POWER FACTORS (PF) FOR SERIES RCL CIRCUITS	25	26	15	30	28	17	21	29	0	17
D 214 D1-30 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RCL CIRCUITS	36	37	23	35	44	17	43	35	14	17
D 215 D1-31 DO YOU CALCULATE IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS	19	22	0	30	28	0	29	12	0	0
D 216 D1-32 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING THE ASSUMED VOLTAGE METHOD	24	25	15	30	22	17	21	35	14	0
D 217 D1-33 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING OHM'S LAW	36	37	23	45	39	33	36	35	14	17
D 218 D1-34 DO YOU CHECK CAPACITORS USING OHMMETERS	70	71	62	80	89	67	64	71	57	67
D 219 D1-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION	61	60	62	70	72	67	57	71	29	50
D 220 D1-36 DO YOU CHECK INDUCTORS USING OHMMETERS	63	62	69	65	78	67	64	65	43	67
D 221 D1-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION	54	56	38	65	72	33	43	65	29	33
D 222 D1-38 DO YOU USE OR REFER TO THE GENERAL RULE THAT THETA= 0, PF = 1, AND PA = PT FOR RESONANT CIRCUITS	13	15	0	15	22	0	14	6	0	0
D 223 D1-39 DO YOU CALCULATE RESONANT FREQUENCIES FOR RCL CIRCUITS	37	38	23	40	56	33	29	29	29	17
D 224 D1-40 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE RESONANT FREQUENCY FOR SERIES RCL CIRCUITS	38	40	31	30	78	17	21	24	29	33
D 225 D1-41 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT RESONANT FREQUENCY FOR PARALLEL RCL CIRCUITS	32	35	8	40	56	0	21	18	14	0
D 226 D1-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 PERCENT OF THE PEAK CURRENT VALUE	35	38	8	35	67	0	14	29	14	17
D 227 D1-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO Q	25	27	8	30	50	0	21	12	14	17
D 228 D1-44 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS	32	34	15	35	50	17	14	24	29	17

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
D 229	D2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO SERIES OR PARALLEL RESONANT CIRCUITS OR TIME CONSTANTS	46	47	38	45	67	67	36	41	29	17	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)
D 230	D2-02 DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS	46	47	38	40	78	67	43	29	29	17	
D 231	D2-03 DO YOU WORK WITH, USE, OR REFER TO AVAILABLE VOLTAGE	38	41	23	50	44	33	29	29	29	17	
D 232	D3-04 DO YOU WORK WITH, USE, OR REFER TO TRANSIENT INTERVALS	34	33	38	40	44	67	21	18	29	17	
D 233	D2-05 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE (5) TIME CONSTANTS (TC)	38	41	15	30	67	17	21	29	29	17	
D 234	D2-06 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS	20	22	8	15	39	17	14	12	14	0	
D 235	D2-07 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUIT CURRENT OR COMPONENT VOLTAGES AFTER A SPECIFIC TIME FOR RC OR LR CIRCUITS	29	31	15	25	44	17	36	12	14	17	
D 236	D2-08 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT VOLTAGES TO REACH SPECIFIC VALUES FOR RC OR LR CIRCUITS	30	32	15	25	50	17	29	18	14	17	
D 237	D2-09 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE COMPONENT VALUES REQUIRED FOR CIRCUIT CURRENT AND COMPONENT VOLTAGES TO REACH SPECIFIC VALUES IN SPECIFIC TIMES	28	30	15	25	50	17	36	12	14	17	
D 238	D2-10 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT IN LR CIRCUITS REACHES ITS MINIMUM VALUE (OR ZERO) AFTER FIVE (5) TIME CONSTANTS	27	30	8	25	50	0	29	18	14	17	
D 239	D3-01 DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB	65	68	46	70	94	67	50	65	57	17	
D 240	D3-02 DO YOU INSPECT FILTER CIRCUITS	67	70	46	75	83	50	57	71	71	33	
D 241	D3-03 DO YOU CLEAN FILTER CIRCUITS	51	54	31	60	61	17	57	35	71	33	FILTERS
D 242	D3-04 DO YOU ALIGN OR ADJUST FILTER CIRCUITS	60	59	62	65	72	83	50	65	43	33	
D 243	D3-05 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT LEVEL	65	66	62	60	89	83	50	71	71	33	
D 244	D3-06 DO YOU TROUBLESHOOT TO COMPONENT PARTS	69	71	54	75	89	67	64	71	71	33	
D 245	D3-07 DO YOU REMOVE OR REPLACE THE COMPLETE FILTER CIRCUIT	62	62	62	60	83	83	57	65	43	33	
D 246	D3-08 DO YOU REMOVE OR REPLACE FILTER CIRCUIT COMPONENT PARTS	68	70	54	70	89	67	64	71	71	33	
D 247	D3-09 DO YOU WORK WITH LOW PASS FILTERS	62	64	46	65	83	67	57	59	57	33	
D 248	D3-10 DO YOU WORK WITH HIGH PASS FILTERS	62	64	46	65	83	67	57	59	57	33	
D 249	D3-11 DO YOU WORK WITH BANDPASS FILTERS	56	57	46	60	72	67	50	59	43	33	
D 250	D3-12 DO YOU WORK WITH BAND-REJECT FILTERS	55	56	46	60	67	67	57	59	43	33	
D 251	D3-13 DON'T REMEMBER WHICH TYPE OF FILTER YOU WORK WITH	17	16	23	20	17	17	14	18	29	17	
D 252	D3-14 DO YOU WORK WITH L-SECTION FILTER CONFIGURATION	44	47	23	50	56	17	50	47	43	33	
D 253	D3-15 DO YOU WORK WITH T-SECTION FILTER CONFIGURATION	44	45	38	45	56	50	43	47	43	33	
D 254	D3-16 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATION	41	43	31	40	56	33	36	47	43	33	
D 255	D3-17 DON'T REMEMBER WHICH TYPE FILTER CONFIGURATION	30	30	31	40	33	33	21	29	29	17	
D 256	D3-18 DO THE FILTERS YOU WORK WITH USE PARALLEL RESONANT CIRCUITS	53	54	46	60	67	50	43	53	57	33	
D 257	D3-19 DO THE FILTERS YOU WORK WITH USE SERIES-PARALLEL CIRCUITS	54	55	46	65	61	50	43	53	57	33	
D 258	D3-20 DO THE FILTERS YOU WORK WITH USE SERIES RESONANT CIRCUITS	51	52	46	55	67	50	43	41	57	33	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
D 259	D3-21 DON'T REMEMBER WHICH TYPE OF BASIC CIRCUIT	24	23	31	30	28	50	21	24	14	17	
D 260	D3-22 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC FILTERS	28	31	8	25	44	0	36	18	43	17	
E 261	E1-01 DO YOU WORK WITH COUPLING DEVICES IN YOUR PRESENT JOB	70	73	54	80	89	67	71	59	71	33	
E 262	E1-02 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH RC COUPLING	75	76	69	90	78	83	71	76	57	50	
E 263	E1-03 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH IMPEDANCE COUPLING	74	75	69	80	83	83	71	76	57	50	
E 264	E1-04 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH TRANSFORMER COUPLING	76	77	69	85	78	83	79	76	71	50	
E 265	E1-05 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM RC COUPLING	76	77	69	85	89	83	79	76	57	50	
E 266	E1-06 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM IMPEDANCE COUPLING	74	75	69	80	89	83	71	76	43	50	
E 267	E1-07 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM TRANSFORMER COUPLING	73	74	69	75	83	83	79	76	57	50	
E 268	E1-08 DO YOU WORK WITH DIRECTLY COUPLED CIRCUITS	77	79	62	90	83	67	79	71	71	50	
E 269	E1-09 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS	73	76	54	90	83	67	79	71	57	33	
E 270	E1-10 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS	66	68	54	75	78	67	64	71	43	33	
E 271	E1-11 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS	71	74	54	80	78	67	79	71	57	33	
E 272	E1-12 DON'T REMEMBER WHICH TYPE OF COUPLING CIRCUITS	15	16	8	30	11	0	21	18	14	17	
E 273	E2-01 IN YOUR PRESENT JOB, DO YOU PERFORM SOLDERING TECHNIQUES OR INSPECT OR EVALUATE SOLDERED CONNECTIONS	92	95	77	90	94	67	93	100	86	83	
E 274	E2-02 DO YOU SELECT TYPE OF SOLDER TO USE	93	92	100	90	89	100	100	88	100	100	
E 275	E2-03 DO YOU ADD FLUX TO CONNECTIONS	94	93	100	90	89	100	100	94	66	100	
E 276	E2-04 DO YOU CLEAN CONNECTIONS USING SOLVENTS	88	88	92	75	89	83	93	88	100	100	
E 277	E2-05 DO YOU STRIP INSULATION FROM WIRES	98	98	100	95	94	100	100	100	100	100	
E 278	E2-06 DO YOU CONNECT OR DISCONNECT HEAT SINKS	97	97	100	95	94	100	100	100	100	100	
E 279	E2-07 DO YOU BEND OR SHAPE WIRES OR LEADS	98	98	100	95	94	100	100	100	100	100	
E 280	E2-08 DO YOU CUT WIRES	96	96	100	95	89	100	100	100	86	100	
E 281	E2-09 DO YOU FILE OR SHAPE SOLDERING IRON TIPS	90	92	77	90	83	67	93	100	100	100	
E 282	E2-10 DO YOU TIN SOLDERING IRON TIPS	97	97	100	95	89	100	100	100	100	100	
E 283	E2-11 DO YOU CLEAN SOLDERING IRON TIPS	98	98	100	95	94	100	100	100	100	100	
E 284	E2-12 DO YOU CLEAN ELECTRICAL SURFACES USING ERASERS	91	91	92	85	89	83	100	88	86	100	
E 285	E2-13 DO YOU TIN OR PRE-TIN CONDUCTORS	94	95	92	90	94	83	100	100	86	100	
E 286	E2-14 DO YOU INSPECT SOLDERED CONNECTIONS	97	97	100	95	89	100	100	100	100	100	
E 287	E2-15 DO YOU DESOLDER CONNECTIONS BY WICKING	75	76	69	70	72	50	79	82	71	83	
E 288	E2-16 DO YOU DESOLDER CONNECTIONS USING VACUUM DESOLDERING TOOLS	94	93	100	90	83	100	100	94	100	100	
E 289	E2-17 DO YOU CUT COMPONENT LEADS TO REMOVE COMPONENTS	78	77	85	70	72	83	86	82	43	100	
E 290	E2-18 DO YOU CRUSH COMPONENTS FOR REMOVAL	37	37	31	40	39	0	29	47	29	67	

COUPLING

SOLDERING

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
E 291	E2-19 DO YOU MAKE HARDWIRE CONNECTIONS	95	95	100	95	94	100	100	100	66	100	
E 292	E2-20 DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS	97	97	100	95	94	100	100	94	100	100	
E 293	E2-21 DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS ON PRINTED CIRCUIT BOARDS	98	98	100	100	94	100	100	94	100	100	
E 294	E2-22 DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS ON PRINTED CIRCUIT BOARDS	98	98	100	100	100	100	100	94	100	100	
E 295	E3-01 DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB	93	93	92	95	89	83	100	94	100	100	
E 296	E3-02 DO YOU ADJUST RELAYS	87	86	92	80	83	83	100	88	71	100	
E 297	E3-03 DO YOU CLEAN RELAYS	96	96	100	90	94	100	100	100	100	100	RELAYS
E 298	E3-04 DO YOU INSPECT RELAYS	95	95	100	90	89	100	100	100	100	100	
E 299	E3-05 DO YOU REMOVE OR REPLACE COMPLETE RELAYS	95	95	100	95	94	100	100	100	100	100	
E 300	E3-06 DO YOU REMOVE OR REPLACE PARTS OR RELAYS	77	77	77	75	67	50	93	82	57	100	
E 301	E3-07 DO YOU TROUBLESHOOT RELAYS	97	97	100	95	100	100	93	100	100	100	
E 302	E3-08 DO YOU STRAIGHTEN RELAY CONTACTS	90	90	92	85	89	83	93	94	100	100	
E 303	E3-09 DO YOU PERFORM TASKS ON RELAY CONTACTS	97	97	100	95	94	100	100	100	100	100	
E 304	E3-10 DO YOU PERFORM TASKS ON RELAY CORES	49	49	46	50	50	17	71	29	43	67	
E 305	E3-11 DO YOU PERFORM TASKS ON RELAY COILS	66	68	54	60	67	33	66	71	57	67	
E 306	E3-12 DO YOU PERFORM TASKS ON RELAY ARMATURES	62	64	46	60	72	0	79	53	71	83	
E 307	E3-13 DO YOU PERFORM TASKS ON RELAY SPRINGS	90	92	77	90	100	50	100	94	86	100	
E 308	E3-14 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPER (NO) SCHEMATIC SYMBOLS FOR RELAYS	96	96	100	95	89	100	100	100	100	100	
E 309	E3-15 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS	96	96	100	95	89	100	100	100	100	100	
E 310	E3-16 DO YOU USE OR REFER TO SINGLE POLE, DOUBLE THROW (SPDT) SCHEMATIC SYMBOLS FOR RELAYS	94	93	100	95	94	100	93	94	86	100	
E 311	E3-17 DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS	95	95	100	95	94	100	93	94	100	100	
E 312	E3-18 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS SCHEMATIC SYMBOLS FOR RELAYS	89	88	100	80	89	100	93	94	86	100	
E 313	E3-19 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE	90	90	92	90	94	83	86	94	100	100	
F 314	F1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES	48	48	46	55	61	67	50	35	29	33	
F 315	F1-02 DO YOU INSPECT MICROPHONES	40	42	31	45	50	50	50	24	29	17	
F 316	F1-03 DO YOU CLEAN MICROPHONES	38	38	31	40	44	50	50	24	29	17	MICROPHONES
F 317	F1-04 DO YOU OPERATE MICROPHONES	41	42	38	45	56	67	50	24	29	17	
F 318	F1-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OR MICROPHONES	35	36	23	35	50	33	29	24	29	17	
F 319	F1-06 DO YOU TROUBLESHOOT DOWN TO MICROPHONE PARTS	29	27	38	40	22	67	43	6	29	17	
F 320	F1-07 DO YOU REMOVE OR REPLACE COMPLETE MICROPHONES	44	44	46	50	56	83	50	24	29	17	
F 321	F1-08 DO YOU REMOVE OR REPLACE MICROPHONE PARTS	26	26	23	40	22	33	43	0	29	17	
F 322	F1-09 DO YOU PERFORM TASKS ON CARBON MICROPHONES	24	25	15	25	28	17	50	12	14	17	
F 323	F1-10 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES	20	21	15	15	33	17	21	18	29	17	
F 324	F1-11 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES	32	34	15	40	56	33	36	12	29	0	
F 325	F1-12 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES	27	29	15	35	44	33	29	12	29	0	
F 326	F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES	7	7	8	15	6	0	7	0	14	17	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
F 327	F2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS	64	65	62	55	83	67	64	71	57	50	SPEAKERS
F 328	F2-02 DO YOU INSPECT SPEAKERS	66	67	62	55	78	50	79	76	57	67	
F 329	F2-03 DO YOU CLEAN SPEAKERS	52	54	38	50	61	0	79	47	43	67	
F 330	F2-04 DO YOU OPERATE SPEAKERS	67	67	69	55	83	67	79	76	57	67	
F 331	F2-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OF SPEAKERS	60	57	77	45	72	83	71	59	29	67	
F 332	F2-06 DO YOU TROUBLESHOOT DOWN TO SPEAKER PARTS	29	30	23	30	17	0	50	41	43	50	
F 333	F2-07 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS	67	66	77	55	72	83	79	76	57	67	
F 334	F2-08 DO YOU REMOVE OR REPLACE SPEAKER PARTS	18	18	23	20	6	0	36	18	29	50	
F 335	F2-09 DO YOU PERFORM ANY TASKS ON SPEAKER CONES	17	18	15	20	28	17	21	12	14	17	
F 336	F2-10 DO YOU PERFORM ANY TASKS ON SPEAKER SPIDERS	10	10	8	20	6	0	14	6	0	17	
F 337	F2-11 DO YOU PERFORM ANY TASKS ON SPEAKER FIELD COILS	13	14	8	20	11	0	14	12	14	17	
F 338	F2-12 DO YOU PERFORM ANY TASKS ON SPEAKER VOICE COILS	14	15	8	25	11	0	14	12	14	17	
F 339	F2-13 DO YOU PERFORM ANY TASKS ON SPEAKER PERMANENT MAGNETS	15	16	8	25	17	0	14	18	14	17	
F 340	F2-14 DO YOU PERFORM ANY TASKS ON SPEAKER ELECTROMAGNETS	13	13	8	25	11	0	14	12	14	17	
F 341	F2-15 DO YOU PERFORM ANY TASKS ON SPEAKER SOFT IRON CORES	12	12	8	25	6	0	14	18	0	17	
F 342	F3-01 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB	91	93	77	95	100	83	93	88	100	67	
F 343	F3-02 DO YOU USE OSCILLOSCOPES TO PERFORM OPERATIONAL CHECKS	91	91	92	85	89	100	100	88	86	83	OSCILLOSCOPES
F 344	F3-03 DO YOU USE OSCILLOSCOPES TO PERFORM ALIGNMENTS OR ADJUSTMENTS	92	93	85	100	83	83	93	88	100	83	
F 345	F3-04 DO YOU USE OSCILLOSCOPES TO TROUBLESHOOT ELECTRONIC CIRCUITS	92	92	92	100	89	100	86	88	100	83	
F 346	F3-05 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCY	87	87	85	90	89	83	93	82	86	83	
F 347	F3-06 DO YOU USE OSCILLOSCOPES TO MEASURE TIME	87	87	85	90	83	83	100	76	100	83	
F 348	F3-07 DO YOU USE OSCILLOSCOPES TO OBSERVE LISAJOUS PATTERNS	43	43	46	60	28	50	43	29	43	33	
F 349	F3-08 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES	88	89	77	80	89	100	100	88	86	50	
F 350	F3-09 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS	55	54	62	65	44	67	64	47	43	50	
F 351	F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGE	89	90	85	100	89	83	93	82	57	83	
F 352	F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS	80	79	85	65	78	100	93	82	71	67	
F 353	F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGE	91	91	92	100	83	100	100	76	100	83	
G 354	G1-01 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB	92	93	85	100	94	83	100	88	86	83	
G 355	G1-02 DO YOU INSPECT DIODES	92	93	85	100	89	83	100	94	86	83	SEMICONDUCTOR DIODES
G 356	G1-03 DO YOU REMOVE OR REPLACE DIODES	95	96	92	95	100	83	100	94	86	100	
G 357	G1-04 DO YOU CHECK DIODES USING AN INSTRUMENT	96	96	100	100	94	100	100	94	86	100	
G 358	G1-05 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES	26	25	31	40	28	33	29	6	14	33	
G 359	G1-06 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE LIAS RESISTANCE	31	32	23	50	28	17	36	12	43	33	
G 360	G1-07 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES	36	36	31	50	33	17	43	12	71	50	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010
G 361 G1-08 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES	84	85	77	95	100	83	79	76	86	67
G 362 G1-09 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE	90	91	85	100	89	100	100	82	71	67
G 363 G1-10 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW	33	35	15	55	33	0	43	18	14	33
G 364 G1-11 DO YOU USE OR REFER TO MEASUREMENTS OF FORWARD BIAS RESISTANCE	81	81	77	90	89	67	71	82	71	83
G 365 G1-12 DO YOU USE OR REFER TO DIODE COLOR CODING	47	47	46	55	56	33	43	35	57	50
G 366 G1-13 DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	12	13	0	25	11	0	14	12	14	0
G 367 G1-14 DO YOU USE OR REFER TO CENTRIPETAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	13	14	0	25	17	0	14	12	14	0
G 368 G1-15 DO YOU USE OR REFER TO DIODE NUMBERING SYSTEM, SUCH AS 1N 538	86	85	92	80	94	100	79	88	86	83
G 369 G1-16 DO YOU USE OR REFER TO KINETIC ENERGY OF AN ELECTRON MOVING IN ORBIT	14	15	8	30	22	0	7	12	0	17
G 370 G1-17 DO YOU USE OR REFER TO POTENTIAL ENERGY OF AN ELECTRON MOVING IN ORBIT	13	15	0	30	17	0	7	12	0	0
G 371 G1-18 DO YOU USE OR REFER TO MEASUREMENTS OF REVERSE BIAS RESISTANCE	72	73	69	90	67	67	50	76	86	67
G 372 G1-19 DO YOU USE OR REFER TO NUMBER OF ELECTRONS IN A PARTICULAR SHELL OR ORBIT	13	15	0	20	11	0	14	12	29	0
G 373 G1-20 DO YOU USE OR REFER TO PERMISSIBLE ENERGY LEVELS OF AN ORBITING ELECTRON	11	12	0	20	11	0	7	6	29	0
G 374 G1-21 DO YOU USE OR REFER TO FORBIDDEN ENERGY LEVELS OF AN ORBITING ELECTRON	9	10	0	20	11	0	7	6	14	0
G 375 G1-22 DO YOU USE OR REFER TO VALENCE ELECTRONS (THOSE IN THE OUTERMOST SHELL)	17	20	0	30	22	0	14	12	29	0
G 376 G1-23 DO YOU USE OR REFER TO ATOMIC NUMBER (TOTAL NUMBER OF ELECTRONS IN ATOM)	15	18	0	25	22	0	21	6	14	0
G 377 G1-24 DO YOU USE OR REFER TO SYMBOLS ON THE DIODE WHICH INDICATE THE CATHODE END	90	90	92	100	94	100	79	94	71	83
G 378 G1-25 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON	69	73	46	80	72	50	71	71	71	50
G 379 G1-26 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OF RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)	64	68	38	75	78	33	71	59	57	33
G 380 G1-27 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES, SUCH AS VOLTAGE - CURRENT CHARACTERISTIC CURVES (PERHAPS YOU DO THIS TO IDENTIFY POINTS OF STRUCTURAL BREAKDOWN OR OPERATING REGIONS)	35	34	38	40	33	50	43	24	14	33
G 381 G1-28 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS	79	78	85	75	78	100	100	76	71	67
G 382 G1-29 DO YOU USE OR REFER TO VALENCE BAND IN SEMICONDUCTOR MATERIALS	19	20	15	25	22	0	21	6	29	33

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
G 383 G1-30 DO YOU USE OR REFER TO FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS	15	15	15	25	11	0	14	6	29	33	
G 384 G1-31 DO YOU USE OR REFER TO CONDUCTION BAND IN SEMICONDUCTOR MATERIALS	21	22	15	30	28	0	14	6	29	33	
G 385 G1-32 DO YOU USE OR REFER TO COVALENT BONDING IN SEMICONDUCTOR MATERIALS	20	21	15	25	28	0	21	6	29	33	
G 386 G1-33 DO YOU USE OR REFER TO ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS	19	21	8	35	22	0	21	6	29	17	
G 387 G1-34 DO YOU USE OR REFER TO ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS	36	40	8	55	50	0	36	24	29	17	
G 388 G1-35 DO YOU USE OR REFER TO DONOR IMPURITY IN SEMICONDUCTORS	17	20	0	25	28	0	7	6	29	0	
G 389 G1-36 DO YOU USE OR REFER TO ACCEPTOR IMPURITY IN SEMICONDUCTORS	17	20	0	25	28	0	7	6	29	0	
G 390 G1-37 DO YOU USE OR REFER TO P-TYPE SEMICONDUCTOR MATERIAL	59	64	23	70	67	33	64	53	71	17	
G 391 G1-38 DO YOU USE OR REFER TO N-TYPE SEMICONDUCTOR MATERIAL	59	64	23	70	72	33	64	53	57	17	
G 392 G1-39 DO YOU USE OR REFER TO MAJORITY CARRIERS IN SEMICONDUCTORS	31	34	8	45	44	0	14	18	29	17	
G 393 G1-40 DO YOU USE OR REFER TO MINORITY CARRIERS IN SEMICONDUCTORS	30	33	8	45	39	0	14	18	29	17	
G 394 G1-41 DO YOU USE OR REFER TO JUNCTION RECOMBINATION IN SEMICONDUCTORS	23	25	8	35	33	0	14	18	14	17	
G 395 G1-42 DO YOU USE OR REFER TO DEPLETION REGION IN SEMICONDUCTORS	29	31	15	40	44	17	14	18	29	17	
G 396 G1-43 DO YOU USE OR REFER TO RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL	27	30	8	40	39	17	14	18	29	0	
G 397 G1-44 DO YOU USE OR REFER TO THE 10:1 BACK TO FRONT RESISTANCE RATIO FOR DIODES	51	56	15	65	56	17	57	53	29	17	
G 398 G1-45 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS	17	20	0	25	22	0	21	12	0	0	
G 399 G1-46 DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION	78	79	69	80	78	100	79	88	57	33	
G 400 G1-47 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS	65	66	62	70	72	83	79	65	43	33	
G 401 G1-48 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS	59	58	62	65	67	83	64	59	29	33	
G 402 G1-49 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS	62	62	62	60	72	83	71	65	43	33	
G 403 G1-50 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS	63	64	62	70	61	83	79	65	43	33	
G 404 G2-01 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB.	95	96	92	95	100	83	93	88	100	100	
G 405 G2-02 DO YOU INSPECT TRANSISTORS	94	96	85	100	89	67	93	94	100	100	
G 406 G2-03 DO YOU REMOVE OR REPLACE TRANSISTORS	98	98	100	100	100	100	93	94	100	100	TRANSISTORS
G 407 G2-04 DO YOU CHECK TRANSISTORS USING AN INSTRUMENT	98	98	100	100	100	100	93	94	100	100	
G 408 G2-05 DO YOU USE OR REFER TO EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	96	97	92	100	94	100	93	94	100	83	
G 409 G2-06 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	97	98	92	100	100	100	100	94	100	83	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
G 410 G2-07 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS	94	95	92	100	89	100	100	94	100	83	
G 411 G2-08 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION	59	59	54	65	61	50	57	47	57	50	
G 412 G2-09 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION	57	58	46	60	61	50	57	47	57	33	
G 413 G2-10 DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE AND EMITTER)	66	66	69	65	72	67	64	65	43	67	
G 414 G2-11 DO YOU USE OR REFER TO LEAKAGE CURRENT (ICBO) IN A TRANSISTOR	59	62	38	60	89	33	57	41	57	33	
G 415 G2-12 DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS	97	97	100	100	100	100	100	88	100	100	
G 416 G2-13 DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS 01, 02, 03, ETC	99	99	100	100	100	100	100	94	100	100	
G 417 G2-14 DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION	93	92	100	85	100	100	100	94	86	100	
G 418 G2-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT IB IS NORMALLY SIGNIFICANTLY SMALLER THAN THE EMITTER CURRENT IE (USUALLY IB BEING 2 TO 8 PERCENT OF IE)	64	63	77	60	61	67	86	53	57	83	
G 419 G2-16 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR TRANSISTORS	74	75	69	80	78	67	71	82	57	67	
G 420 G2-17 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (ICBO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES	54	56	38	55	83	17	57	35	29	50	
G 421 G2-18 DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES	41	42	38	55	50	50	50	18	14	17	
G 422 G2-19 DO YOU USE OR REFER TO BETA TRANSISTOR GAINS	41	43	31	50	50	17	36	29	43	50	
G 423 G2-20 DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS	38	40	31	45	50	17	36	24	29	50	
G 424 G2-21 DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS	36	36	31	40	50	17	29	24	14	50	
G 425 G2-22 DO YOU CALCULATE BETA TRANSISTOR GAINS	23	25	8	30	28	0	21	12	43	17	
G 426 G2-23 DO YOU CALCULATE ALPHA TRANSISTOR GAINS	23	25	8	30	28	0	21	12	43	17	
G 427 G2-24 DO YOU CALCULATE GAMMA TRANSISTOR GAINS	21	23	8	30	28	0	14	12	29	17	
G 428 G3-01 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB	87	88	77	95	94	67	79	82	86	83	
G 429 G3-02 DO YOU INSPECT TRANSISTOR AMPLIFIERS	90	91	85	95	89	83	100	88	86	83	
G 430 G3-03 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS	86	87	77	90	89	67	86	82	86	83	TRANSISTOR AMPLIFIERS
G 431 G3-04 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL	90	89	100	95	89	100	86	88	66	100	
G 432 G3-05 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS	90	89	100	95	89	100	93	82	86	100	
G 433 G3-06 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER	80	77	100	75	72	100	93	71	71	100	
G 434 G3-07 DO YOU REMOVE OR REPLACE AMPLIFIER COMPONENTS	91	90	100	95	89	100	93	88	86	100	
G 435 G3-08 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A CHANGE IN BASE CURRENT	63	66	38	70	67	33	79	59	57	33	
G 436 G3-09 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	40	42	31	40	39	33	57	41	43	17	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010
G 437 G3-10 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE CURRENT	63	65	46	60	67	50	64	65	71	33
G 438 G3-11 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	45	47	31	60	33	33	50	41	57	17
G 439 G3-12 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL	62	64	46	65	67	33	64	59	71	50
G 440 G3-13 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN BASE CURRENT WHICH RESULTS FROM A SPECIFIC INPUT SIGNAL	45	48	23	55	33	17	43	53	71	17
G 441 G3-14 DO YOU USE THE LOAD-LINE METHOD OF ANALYSIS IN YOUR CIRCUIT ANALYSIS (THIS METHOD REQUIRES YOU TO PLOT A LOAD-LINE ON A TRANSISTOR CHARACTERISTIC CURVE)	21	23	8	35	28	0	21	6	29	17
G 442 G3-15 DO YOU USE OR REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR	37	40	15	50	44	17	43	18	57	17
G 443 G3-16 DO YOU CALCULATE THE SPECIFIC QUIESCENT POINT FOR A PARTICULAR TRANSISTOR	20	23	0	30	28	0	21	12	14	0
G 444 G3-17 DO YOU MEASURE VOLTAGE GAIN USED IN THE COMMON EMITTER CONFIGURATION	66	67	62	85	72	83	64	47	71	33
G 445 G3-18 DO YOU MEASURE CURRENT GAIN USED IN THE COMMON EMITTER CONFIGURATION	57	56	62	70	56	67	57	41	57	50
G 446 G3-19 DO YOU MEASURE POWER GAIN USED IN THE COMMON EMITTER CONFIGURATION	57	56	62	70	56	67	57	41	43	50
G 447 G3-20 DO YOU CALCULATE THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE IN BASE-EMITTER VOLTAGE INTO THE CHANGE THE BASE COLLECTOR VOLTAGE TO DETERMINE THE VOLTAGE GAIN	29	32	8	35	28	0	50	24	29	17
G 448 G3-21 DO YOU CALCULATE THE CURRENT GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE IN BASE CURRENT INTO THE CHANGE IN COLLECTOR CURRENT TO DETERMINE THE CURRENT GAIN	30	33	8	40	28	0	50	24	29	17
G 449 G3-22 DO YOU CALCULATE THE POWER GAIN FOR A SPECIFIC TRANSISTOR USING A FORMULA THAT IS, DO YOU MULTIPLY THE CURRENT GAIN TIMES THE VOLTAGE GAIN TO DETERMINE THE POWER GAIN	25	29	0	30	33	0	36	18	29	0
G 450 G3-23 DO YOU NEED TO KNOW THAT MORE COLLECTOR CURRENT IS GENERATED WITH LESS COLLECTOR VOLTAGE AS TEMPERATURE INCREASES (THIS AFFECTS THE STATIC OPERATING POINT [Q] OF THE TRANSISTOR)	36	40	8	45	56	0	29	35	29	17
G 451 G3-24 DO YOU COMPUTE THE STATIC OPERATING POINT [Q] OF A TRANSISTOR AT DIFFERENT TEMPERATURES	18	21	0	30	17	0	21	12	14	0
G 452 G3-25 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH EMITTER (SWAMPING) RESISTOR STABILIZATION	60	59	62	70	61	50	50	53	71	67
G 453 G3-26 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH SELF-BIAS STABILIZATION	60	59	62	60	78	50	50	53	71	67

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010
G 454 G3-27 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH THERMISTOR STABILIZATION	58	57	62	50	67	50	50	53	71	67
G 455 G3-28 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION	62	62	62	65	78	50	50	53	71	67
G 456 G3-29 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION	61	60	62	65	78	50	50	47	71	67
G 457 G3-30 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH DOUBLE DIODE STABILIZATION	56	55	62	50	78	50	50	47	57	67
G 458 G3-31 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM EMITTER (SWAMPING) RESISTOR STABILIZATION	62	60	69	65	61	67	57	59	71	67
G 459 G3-32 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM SELF-BIAS STABILIZATION	65	65	69	60	78	67	71	59	71	67
G 460 G3-33 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THERMISTOR STABILIZATION	62	60	69	50	67	67	64	59	71	67
G 461 G3-34 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM FORWARD BIAS DIODE STABILIZATION	63	63	69	65	78	67	57	53	71	67
G 462 G3-35 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM REVERSE BIAS DIODE STABILIZATION	63	63	69	65	78	67	57	53	71	67
G 463 G3-36 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM DOUBLE DIODE STABILIZATION	59	57	69	50	78	67	57	53	57	67
G 464 G3-37 DO YOU IDENTIFY AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS	63	64	62	70	78	83	71	53	57	33
G 465 G3-38 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF AMPLITUDE DISTORTION	73	73	77	75	89	100	79	59	71	50
G 466 G3-39 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS	66	66	69	75	67	83	71	59	71	50
G 467 G3-40 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS	55	55	54	60	61	67	43	41	71	33
G 468 G3-41 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF PHASE DISTORTION	54	53	62	60	56	67	43	41	71	50
G 469 G3-42 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF FREQUENCY DISTORTION	65	65	69	70	67	83	71	59	71	50
G 470 G3-43 DO YOU NEED TO KNOW THE DEGENERATIVE EFFECTS ON THE CIRCUIT CAUSED BY CHANGING EMITTER RESISTANCE FOR TRANSISTOR AMPLIFIERS IN THE COMMON COLLECTOR CONFIGURATION	52	55	31	55	67	17	50	41	71	33
G 471 G3-44 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	42	44	31	60	50	17	64	18	29	50
G 472 G3-45 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	45	44	54	50	33	33	64	41	29	67
G 473 G3-46 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	85	85	85	90	89	83	100	71	86	83
G 474 G3-47 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS	55	53	69	50	61	67	50	53	57	67
G 475 G3-48 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	62	62	62	75	61	67	71	53	43	50

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
G 476 G3-49 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	62	63	54	65	61	50	86	53	57	50	
H 477 H1-01 DO YOU USE OR REFER TO VARACTORS	55	55	54	60	56	50	64	35	71	50	
H 478 H1-02 DO YOU USE OR REFER TO TUNNEL DIODES	79	78	85	85	72	83	79	71	71	83	
H 479 H1-03 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTORS (FET)	88	88	85	95	83	83	86	88	86	83	
H 480 H1-04 DO YOU USE OR REFER TO UNIJUNCTION TRANSISTORS	79	79	77	85	89	67	79	76	57	83	SOLID-STATE SPECIAL PURPOSE DEVICES
H 481 H1-05 DO YOU USE OR REFER TO ZENER DIODES	93	93	92	95	89	83	100	94	86	100	
H 482 H1-06 DO YOU USE OR REFER TO INTEGRATED CIRCUITS	89	89	92	95	89	83	93	88	57	100	
H 483 H2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES	88	89	77	85	94	83	100	76	86	67	
H 484 H2-02 DO YOU INSPECT POWER SUPPLIES	92	93	85	95	89	67	100	82	100	100	
H 485 H2-03 DO YOU CLEAN POWER SUPPLIES	80	82	62	80	89	33	100	65	86	83	
H 486 H2-04 DO YOU ALIGN OR ADJUST POWER SUPPLIES	88	87	100	90	94	100	93	71	86	100	
H 487 H2-05 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL	93	92	100	90	94	100	93	82	100	100	POWER SUPPLIES
H 488 H2-06 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS	94	93	100	95	94	100	93	82	100	100	
H 489 H2-07 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES	87	85	100	75	83	100	93	76	86	100	
H 490 H2-08 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS	94	93	100	95	94	100	93	82	100	100	
H 491 H2-09 DO YOU WORK WITH HALF-WAVE RECTIFIERS	92	92	92	95	94	83	93	82	100	100	
H 492 H2-10 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS	89	89	92	95	89	83	93	82	86	100	
H 493 H2-11 DO YOU WORK WITH BRIDGE RECTIFIERS	94	93	100	95	94	100	100	82	100	100	
H 494 H2-12 DO YOU WORK WITH THREE-PHASE RECTIFIERS	63	60	77	55	67	67	57	65	57	83	
H 495 H2-13 DO YOU USE OR REFER TO INPUT VOLTAGE	90	90	92	95	83	83	100	82	86	100	
H 496 H2-14 DO YOU USE OR REFER TO INPUT FREQUENCY	75	76	69	80	72	67	93	65	71	67	
H 497 H2-15 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGE	78	78	77	90	78	83	93	65	57	67	
H 498 H2-16 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGE	85	85	85	95	78	83	93	71	71	83	
H 499 H2-17 DO YOU USE OR REFER TO RIPPLE AMPLITUDE	66	67	62	80	67	50	86	41	71	67	
H 500 H2-18 DO YOU USE OR REFER TO RIPPLE FREQUENCY	63	63	62	65	72	50	79	35	71	67	
H 501 H2-19 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE	58	57	62	55	61	67	79	35	57	50	
H 502 H2-20 DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS	89	90	85	95	89	83	100	71	86	83	
H 503 H2-21 DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGE	84	84	85	85	89	83	100	76	57	83	
H 504 H2-22 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS	81	80	85	90	78	83	86	71	71	83	
H 505 H2-23 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS	74	75	69	85	72	67	79	71	57	67	
H 506 H2-24 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS	63	63	62	75	72	67	57	59	43	50	
H 507 H2-25 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS	64	65	62	75	78	67	64	59	57	50	
H 508 H2-26 DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS	63	63	62	80	67	67	71	53	43	50	
H 509 H2-27 DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS	67	67	69	85	67	83	71	59	57	50	
H 510 H2-28 DO YOU WORK WITH CIRCUITS WHICH EMPLOY DON'T REMEMBER WHICH TYPE OF FILTER	29	27	38	25	28	17	43	18	29	50	
H 511 H2-29 DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER	29	29	31	40	33	17	21	18	29	33	
H 512 H3-01 DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB	73	75	62	75	78	67	86	71	57	50	OSCILLATORS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
H 513 H3-02 DO YOU INSPECT OSCILLATORS	77	80	54	80	83	50	93	76	71	50	
H 514 H3-03 DO YOU ALIGN OR ADJUST OSCILLATORS	75	77	62	75	78	67	93	71	71	50	
H 515 H3-04 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS	69	70	62	70	78	67	71	71	57	50	
H 516 H3-05 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS	76	77	69	80	78	83	86	76	57	50	
H 517 H3-06 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL	76	77	69	80	83	83	86	76	57	50	
H 518 H3-07 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS	76	77	69	80	78	83	86	76	57	50	
H 519 H3-08 DO YOU USE OR REFER TO FEEDBACK	76	78	62	80	83	83	93	71	57	33	
H 520 H3-09 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (FDD)	71	74	54	75	83	67	93	59	57	33	
H 521 H3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY	65	67	54	65	72	67	79	53	71	33	
H 522 H3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY	67	69	54	65	78	67	86	53	71	33	
H 523 H3-12 DO YOU USE OR REFER TO DAMPING	76	77	69	80	78	83	93	65	71	50	
H 524 H3-13 DO YOU USE OR REFER TO REGENERATIVE FEEDBACK	74	76	62	80	83	83	93	65	57	33	
H 525 H3-14 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT	54	56	38	55	67	33	79	41	43	33	
H 526 H3-15 DO YOU USE OR RFFER TO CRITICAL DAMPING	64	64	69	70	72	83	64	53	71	50	
H 527 H3-16 DO YOU USE OR REFER TO UNDER DAMPING	74	75	69	80	83	83	79	65	71	50	
H 528 H3-17 DO YOU USE OR REFER TO OVER DAMPING	74	75	69	80	83	83	79	65	71	50	
H 529 H3-18 DO YOU WORK WITH OSCILLATORS WHICH USE LC TANK CIRCUITS AS FDD	64	65	62	80	56	67	86	53	43	50	
H 530 H3-19 DO YOU WORK WITH OSCILLATORS WHICH USE RC NETWORKS AS FDD	71	73	62	80	78	67	86	65	57	50	
H 531 H3-20 DO YOU WORK WITH OSCILLATORS WHICH USE CRYSTALS AS FDD	67	69	54	80	61	67	79	71	57	33	
H 532 H3-21 DO YOU WORK WITH OSCILLATORS WHICH USE DON'T REMEMBER WHICH TYPE OF FDD	21	21	23	30	22	17	29	12	14	17	
H 533 H3-22 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS	53	55	38	70	56	33	64	53	43	33	
H 534 H3-23 DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS	57	59	38	70	61	33	71	53	57	33	
H 535 H3-24 DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS	53	56	31	55	56	17	71	53	57	33	
H 536 H3-25 DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS	50	53	31	50	61	17	64	47	57	33	
H 537 H3-26 DO YOU WORK WITH BUTLER SINUSOIDAL OSCILLATORS	48	51	31	55	33	17	64	53	57	33	
H 538 H3-27 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF OSCILLATORS	30	30	31	25	28	33	50	29	14	17	
I 539 I1-01 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB	65	69	38	75	78	50	71	71	71	17	
I 540 I1-02 DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS	70	70	69	75	72	83	86	76	71	50	
I 541 I1-03 DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS	64	65	62	70	67	83	86	65	57	33	MULTIVIBRATORS
I 542 I1-04 DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS	64	64	69	70	72	83	79	59	57	50	
I 543 I1-05 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS	67	67	69	70	78	83	86	71	57	50	
I 544 I1-06 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS	73	74	69	75	78	83	86	71	71	50	
I 545 I1-07 DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS	64	64	69	65	61	83	71	71	71	50	
I 546 I1-08 DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS	72	73	69	75	78	83	86	71	71	50	
I 547 I1-09 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUITS	67	68	62	75	67	67	71	71	57	50	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
I 548	I1-10 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORKS	67	68	62	75	78	67	71	65	57	50	
I 549	I1-11 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTALS	62	62	62	75	50	67	64	65	57	50	
I 550	I1-12 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN DON'T REMEMBER WHICH TYPE OF FDD	25	26	15	25	22	17	64	12	29	17	
I 551	I1-13 DO YOU WORK WITH ASTABLE MULTIVIBRATORS	64	66	54	75	72	50	71	65	57	50	
I 552	I1-14 DO YOU WORK WITH MONOSTABLE MULTIVIBRATORS	66	67	62	75	72	67	71	65	57	50	
I 553	I1-15 DO YOU WORK WITH BISTABLE MULTIVIBRATORS	65	66	62	75	72	67	64	65	57	50	
I 554	I1-16 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE MULTIVIBRATORS	26	27	15	30	22	17	64	18	14	17	
I 555	I2-01 DO YOU WORK WITH LIMITERS OR CLAMPERS IN YOUR PRESENT JOB	65	67	54	55	83	67	79	59	57	33	
I 556	I2-02 DO YOU WORK WITH SERIES DIODE LIMITERS	61	62	54	55	78	67	64	59	57	33	LIMITERS AND
I 557	I2-03 DO YOU WORK WITH SHUNT DIODE LIMITERS	55	56	46	55	61	67	57	53	57	33	CLAMPERS
I 558	I2-04 DO YOU WORK WITH LIMITERS WITH BIAS	54	55	46	55	56	67	57	59	57	33	
I 559	I2-05 DO YOU WORK WITH ZENER DIODE LIMITERS	58	59	46	55	67	67	57	59	57	33	
I 560	I2-06 DO YOU WORK WITH TRANSISTOR LIMITERS	58	58	54	55	61	83	57	59	57	33	
I 561	I2-07 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF LIMITERS	19	22	0	15	28	0	57	12	0	0	
I 562	I2-08 DO YOU WORK WITH BASIC DIODE CLAMPING CIRCUITS	47	49	31	40	56	33	57	47	57	33	
I 563	I2-09 DO YOU WORK WITH DIODE CLAMPING CIRCUITS WITH BIAS	45	47	31	45	56	33	57	47	43	33	
I 564	I2-10 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF CLAMPING CIRCUIT	25	26	15	20	28	33	50	29	0	0	
I 565	I3-01 IN YOUR PRESENT JOB, DO YOU WORK ON EQUIPMENT WHICH CONTAINS ELECTRON TUBES	89	90	85	95	83	83	71	100	100	83	
I 566	I3-02 DO YOU CHECK ELECTRON TUBES TO SEE IF THEY ARE GOOD	90	89	100	90	78	100	79	100	100	100	ELECTRON
I 567	I3-03 DO YOU USE TUBE TESTERS TO CHECK ELECTRON TUBES	75	76	69	65	83	50	57	88	71	100	TUBES
I 568	I3-04 DO YOU USE MULTIMETERS TO CHECK ELECTRON TUBES	88	86	100	85	83	100	79	94	86	100	
I 569	I3-05 DO YOU USE SCOPES TO CHECK ELECTRON TUBES	84	82	92	90	83	83	71	82	71	100	
I 570	I3-06 DO YOU USE SUBSTITUTION TO CHECK ELECTRON TUBES	88	87	92	85	83	83	71	100	86	100	
I 571	I3-07 DO YOU USE OR REFER TO CUTOFF	64	66	54	85	61	50	71	53	57	50	
I 572	I3-08 DO YOU USE OR REFER TO PEAK INVERSE VOLTAGE RATING	41	41	46	45	44	33	43	29	29	50	
I 573	I3-09 DO YOU USE OR REFER TO PEAK CURRENT RATING	42	43	38	55	44	33	43	29	29	33	
I 574	I3-10 DO YOU USE OR REFER TO TRANSIT TIME	28	27	31	30	28	17	29	18	29	33	
I 575	I3-11 DO YOU USE OR REFER TO PLATE DISSIPATION RATING	32	32	31	40	28	17	43	12	29	33	
I 576	I3-12 DO YOU USE OR REFER TO SATURATION	64	67	46	85	67	33	64	47	71	50	
I 577	I3-13 DO YOU USE OR REFER TO DC PLATE RESISTANCE	35	36	23	45	39	17	21	18	71	33	
I 578	I3-14 DO YOU COMPUTE ACTUAL VALUES OF THE DC PLATE RESISTANCE FOR ELECTRON TUBES	17	18	15	30	17	0	7	6	14	33	
I 579	I3-15 DO YOU USE OR REFER TO PLATE VOLTAGE	88	88	92	95	78	83	79	100	86	100	
I 580	I3-16 DO YOU USE OR REFER TO PLATE CURRENT	67	67	69	85	56	67	57	71	71	67	
I 581	I3-17 DO YOU USE OR REFER TO GRID VOLTAGE	88	88	92	95	78	83	79	100	86	100	
I 582	I3-18 DO YOU USE OR REFER TO GRID CURRENT	66	67	62	90	50	50	57	71	71	67	
I 583	I3-19 DO YOU USE OR REFER TO CATHODE VOLTAGE	88	87	92	95	78	83	71	100	86	100	
I 584	I3-20 DO YOU USE OR REFER TO CATHODE CURRENT	65	67	54	85	56	33	57	71	71	67	
I 585	I3-21 DO YOU USE OR REFER TO THE TRIODE AMPLIFICATION FACTOR (THE AMPLIFICATION FACTOR FOR TRIODES IS DEFINED AS THE RATIO OF CHANGE IN PLATE VOLTAGE TO A CHANGE IN GRID VOLTAGE)	46	47	38	60	33	50	43	47	57	17	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
I 586	I3-22 DO YOU CALCULATE ACTUAL VALUES OF TRIODE AMPLIFICATION FACTORS	25	27	8	35	17	0	29	18	43	17	
I 587	I3-23 DO YOU USE OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC) AMPLIFICATION FACTORS	38	40	31	50	33	33	36	35	57	17	
I 588	I3-24 DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G, WHICH IS MEASURED IN MHOS)	22	24	8	30	22	0	29	12	29	17	
I 589	I3-25 DO YOU CALCULATE ACTUAL VALUES OF ELECTRON TUBE TRANSCONDUCTANCES	12	13	0	25	11	0	7	6	14	0	
I 590	I3-26 DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE	30	32	15	45	22	0	29	24	43	33	
I 591	I3-27 DO YOU CALCULATE ACTUAL VALUES OF AC PLATE RESISTANCE	18	20	8	40	11	0	7	18	14	17	
I 592	I3-28 DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE	34	35	23	50	33	17	21	29	43	17	
I 593	I3-29 DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES	31	32	23	45	28	17	36	12	14	33	
I 594	I3-30 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE VOLTAGE FOR A SPECIFIED BIAS	34	35	23	45	22	0	43	12	43	33	
I 595	I3-31 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE CURRENT FOR A SPECIFIED BIAS	32	33	23	45	22	0	43	12	29	33	
I 596	I3-32 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR CUTOFF	37	38	23	45	28	0	57	18	29	33	
I 597	I3-33 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR SATURATION	36	40	8	40	28	0	50	24	43	17	
I 598	I3-34 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER GAIN	60	64	31	75	56	33	57	65	71	17	
I 599	I3-35 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER EFFICIENCY	37	37	31	50	33	17	43	24	14	33	
I 600	I3-36 DO YOU USE TEST TUBE CHECKERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	54	54	54	55	56	50	21	82	43	50	
I 601	I3-37 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	69	69	69	70	67	83	57	76	71	50	
I 602	I3-38 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	77	78	69	95	78	83	64	76	86	50	
I 603	I3-39 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	32	32	31	40	39	17	36	6	29	33	
I 604	I3-40 DO YOU CALCULATE ANY ELECTRON TUBE CAPACITANCES SUCH AS INPUT CAPACITANCE	14	15	8	25	17	0	7	12	14	0	
I 605	I3-41 DO YOU USE OR REFER TO TUBE SOCKET NOTATION	88	87	92	90	78	83	64	100	100	100	
I 606	I3-42 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS	88	88	92	95	78	83	64	100	100	100	
I 607	I3-43 DO YOU USE OR REFER TO THE TYPE OF MATERIAL OR THE OPERATING TEMPERATURE OF THE EMITTING SURFACE IN THE ELECTRON TUBES YOU WORK ON	23	24	15	40	17	0	14	18	29	17	
I 608	I3-44 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS	81	81	77	85	78	67	64	94	71	83	
J 609	J1-01 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB	77	78	69	75	83	67	71	82	71	67	
J 610	J1-02 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	44	45	38	45	61	33	57	29	29	33	ELECTRON TUBE AMPLIFIERS AND CIRCUITS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
J 611	J1-03 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	43	44	38	50	33	33	50	53	29	33	
J 612	J1-04 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	69	71	54	80	72	50	71	71	71	50	
J 613	J1-05 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	50	49	54	55	50	50	50	59	29	50	
J 614	J1-06 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	53	54	46	50	67	50	64	53	43	33	
J 615	J1-07 DO YOU TROUBLESHOOT OR REPAIR DON'T KNOW WHICH TYPE OF AMPLIFIER	26	29	8	30	28	0	29	29	29	17	
J 616	J2-01 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)	78	78	77	80	83	67	79	82	57	83	
J 617	J2-02 DO YOU WORK WITH CATHODE-RAY TUBES	85	84	92	95	89	100	79	88	86	83	SPECIAL PURPOSE ELECTRON TUBES
J 618	J2-03 DO YOU USE OR REFER TO THE CHARACTERISTICS OF BEAM POWER TUBES	29	30	23	30	28	17	43	24	14	17	
J 619	J2-04 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH BEAM POWER TUBES ARE USED	37	37	31	35	44	33	50	35	29	17	
J 620	J2-05 DO YOU USE OR REFER TO THE CHARACTERISTICS OF THYRATRONS	54	57	31	70	72	50	57	35	43	0	
J 621	J2-06 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH THYRATRONS ARE USED	68	70	54	85	72	67	71	59	57	33	
J 622	J2-07 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)	64	69	31	65	72	17	71	71	71	33	
J 623	J2-08 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	63	67	38	65	78	33	71	65	71	33	
J 624	J2-09 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	58	62	31	65	67	17	64	53	71	33	
J 625	J2-10 DO YOU USE OR REFER TO PHOSPHOR SCREENS	67	70	46	70	72	33	71	76	71	50	
J 626	J2-11 DO YOU USE OR REFER TO AQUADAG COATINGS	29	32	8	30	28	0	50	24	29	0	
J 627	J2-12 DO YOU USE OR REFER TO ELECTRON OPTICS	30	31	23	35	11	17	57	18	43	17	
J 628	J2-13 DO YOU USE OR REFER TO PERSISTENCE	39	43	15	40	44	17	64	41	29	0	
J 629	J2-14 DO YOU USE OR REFER TO DECAY TIMES	46	49	23	50	50	17	64	41	43	17	
J 630	J2-15 DO YOU USE OR REFER TO FLUORESCENCE	53	55	38	60	39	50	71	65	43	17	
J 631	J2-16 DO YOU USE OR REFER TO PHOSPHORESCENCE	51	54	31	60	39	33	64	59	43	17	
J 632	J3-01 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	10	11	0	15	11	0	29	6	0	0	
J 633	J3-02 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	11	12	0	15	11	0	36	6	0	0	HETERODYNING, MODULATION, AND DEMODULATION
J 634	J3-03 DO YOU PERFORM TASKS ON FREQUENCY MIXERS	10	11	0	15	11	0	36	0	0	0	
J 635	J3-04 DO YOU USE OR REFER TO THE HETERODYNING OF SIGNALS IN YOUR WORK WITH TRANSMIT OR RECEIVE SYSTEMS	7	8	0	5	11	0	21	6	0	0	
J 636	J3-05 DO YOU PERFORM TASKS ON REACTANCE MODULATORS	6	7	0	5	11	0	21	0	0	0	
J 637	J3-06 DO YOU PERFORM TASKS ON MODULATED OSCILLATORS	6	7	0	5	11	0	21	0	0	0	
K 638	K1-01 DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	5	5	0	5	6	0	14	6	0	0	
K 639	K1-02 DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS	3	3	0	5	0	0	14	0	0	0	AM SYSTEMS
K 640	K1-03 DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS	4	4	0	5	6	0	14	0	0	0	
K 641	K1-04 DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS	3	3	0	5	0	0	14	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
K 642	K1-05 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS	4	4	0	5	6	0	14	0	0	0	
K 643	K1-06 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE COMPONENTS	4	4	0	5	6	0	14	0	0	0	
K 644	K1-07 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS	4	4	0	5	6	0	14	0	0	0	
K 645	K1-08 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS	3	3	0	5	0	0	14	0	0	0	
K 646	K1-09 DO YOU PERFORM TASKS ON RF OSCILLATORS	5	5	0	5	0	0	29	0	0	0	
K 647	K1-10 DO YOU PERFORM TASKS ON RF AMPLIFIERS	6	7	0	5	0	0	29	6	0	0	
K 648	K1-11 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	7	8	0	5	6	0	29	6	0	0	
K 649	K1-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	6	7	0	5	0	0	29	6	0	0	
K 650	K1-13 DO YOU PERFORM TASKS ON LOCAL OSCILLATORS	5	5	0	5	6	0	21	0	0	0	
K 651	K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS	5	5	0	5	0	0	29	0	0	0	
K 652	K1-15 DO YOU PERFORM TASKS ON DETECTORS	4	4	0	5	0	0	21	0	0	0	
K 653	K1-16 DO YOU PERFORM TASKS ON DON'T REMEMBER WHICH AM STAGE	3	3	0	5	0	0	14	0	0	0	
K 654	K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS	4	4	0	10	0	0	14	0	0	0	
K 655	K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS	3	3	0	5	0	0	14	0	0	0	
K 656	K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS	3	3	0	5	0	0	7	6	0	0	
K 657	K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS	2	2	0	5	0	0	7	0	0	0	
K 658	K1-21 DO YOU USE OR REFER TO 2ND HARMONIC DISTORTION	3	3	0	10	0	0	7	0	0	0	
K 659	K1-22 DO YOU USE OR REFER TO BANDPASS DISTORTION	3	3	0	10	0	0	7	0	0	0	
K 660	K1-23 DO YOU USE OR REFER TO SQUARE LAW DISTORTION	3	3	0	10	0	0	7	0	0	0	
K 661	K1-24 DO YOU USE OR REFER TO CO-CHANNEL INTERFERENCE	1	1	0	5	0	0	0	0	0	0	
K 662	K1-25 DO YOU USE OR REFER TO IMAGE FREQUENCIES IN RECEIVERS	1	1	0	5	0	0	0	0	0	0	
K 663	K1-26 DO YOU USE OR REFER TO SIGNAL TO IMAGE RATIOS OR IMAGE REJECTION RATIOS	3	3	0	10	0	0	7	0	0	0	
K 664	K1-27 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM TRANSMITTER SCHEMATIC DIAGRAMS	2	2	0	5	0	0	7	0	0	0	
K 665	K1-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM RECEIVER SCHEMATIC DIAGRAMS	4	4	0	5	0	0	14	6	0	0	
K 666	K2-01 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	4	4	0	5	6	0	7	6	0	0	
K 667	K2-02 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS	4	4	0	5	6	0	7	6	0	0	FM SYSTEMS
K 668	K2-03 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS	2	2	0	5	6	0	0	0	0	0	
K 669	K2-04 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS	2	2	0	5	6	0	0	0	0	0	
K 670	K2-05 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECFIVE SYSTEMS	2	2	0	5	6	0	0	0	0	0	
K 671	K2-06 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS	2	2	0	5	6	0	0	0	0	0	
K 672	K2-07 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS	2	2	0	5	0	0	7	0	0	0	
K 673	K2-08 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS	3	3	0	5	6	0	7	0	0	0	
K 674	K2-09 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	4	4	0	5	6	0	7	6	0	0	
K 675	K2-10 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS	2	2	0	5	0	0	7	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
K 676	K2-11 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)	4	4	0	5	6	0	7	6	0	0	
K 677	K2-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	4	4	0	5	6	0	7	6	0	0	
K 678	K2-13 DO YOU PERFORM TASKS ON RF AMPLIFIERS	4	4	0	5	6	0	7	6	0	0	
K 679	K2-14 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	3	3	0	5	0	0	7	6	0	0	
K 680	K2-15 DO YOU PERFORM TASKS ON IF AMPLIFIERS	3	3	0	5	6	0	7	0	0	0	
K 681	K2-16 DO YOU PERFORM TASKS ON LIMITERS	3	3	0	5	6	0	7	0	0	0	
K 682	K2-17 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS	3	3	0	5	6	0	7	0	0	0	
K 683	K2-18 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS	4	4	0	5	6	0	7	6	0	0	
K 684	K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS	4	4	0	5	6	0	7	6	0	0	
K 685	K3-01 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS	18	21	0	25	17	0	29	12	14	0	
K 686	K3-02 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS	32	35	8	30	39	0	50	24	29	17	NUMBERING SYSTEMS
K 687	K3-03 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS	18	21	0	30	22	0	14	12	14	0	
K 688	K3-04 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS	18	21	0	30	22	0	14	12	14	0	
K 689	K3-05 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS	29	32	8	35	44	0	29	24	14	17	
K 690	K3-06 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS	19	22	0	30	22	0	14	12	14	0	
K 691	K3-07 DO YOU ADD BINARY NUMBERS TO GET A SUM	29	32	8	30	44	0	29	24	29	17	
K 692	K3-08 DO YOU SUBRRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD	21	23	8	20	28	0	14	24	14	17	
K 693	K3-09 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD	24	26	8	30	28	0	21	24	14	17	
K 694	K3-10 DO YOU ADD OCTAL NUMBERS TO GET A SUM	20	22	8	30	22	0	21	12	14	17	
L 695	L1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS	56	62	15	65	67	17	50	71	43	17	
L 696	L1-02 DO YOU CONSTRUCT TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	35	38	8	50	33	0	29	41	14	17	
L 697	L1-03 DO YOU CONSTRUCT TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	35	38	8	50	33	0	29	41	14	17	LOGIC FUNCTIONS
L 698	L1-04 DO YOU CONSTRUCT TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	34	37	8	50	33	0	29	41	14	17	
L 699	L1-05 DO YOU CONSTRUCT TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS OR GATES	30	33	8	40	33	0	29	35	14	17	
L 700	L1-06 DO YOU USE OR REFER TO TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	51	56	15	65	67	33	57	59	14	0	
L 701	L1-07 DO YOU USE OR REFER TO TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	51	56	15	65	67	33	57	59	14	0	
L 702	L1-08 DO YOU USE OR REFER TO TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	50	55	15	65	67	33	57	53	14	0	
L 703	L1-09 DO YOU USE OR REFER TO TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS	50	55	15	65	61	33	64	47	29	0	
L 704	L1-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND GATES	58	64	15	65	72	33	64	71	43	0	
L 705	L1-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR OR GATES	55	60	15	65	67	33	57	71	43	0	
L 706	L1-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR NAND OR NOR GATES	57	63	15	60	72	33	64	71	43	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
L 707 L1-13 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR EXCLUSIVE OR GATES	55	60	15	65	67	33	64	65	43	0	
L 708 L2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC CIRCUITS	33	36	8	35	50	0	29	29	29	17	
L 709 L2-02 DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS	19	21	8	20	28	0	14	12	14	17	BOOLEAN
L 710 L2-03 DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	13	15	0	20	11	0	0	12	14	0	EQUATIONS
L 711 L2-04 DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS	16	19	0	30	17	0	7	6	14	0	
L 712 L2-05 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES	34	35	23	35	50	17	21	35	29	33	
L 713 L2-06 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS	20	23	0	30	28	0	7	18	14	0	
L 714 L2-07 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA	18	21	0	30	22	0	7	12	14	0	
L 715 L2-08 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES	26	29	8	30	39	17	21	24	29	0	
L 716 L2-09 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	18	20	8	25	22	17	7	12	14	0	
L 717 L2-10 DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE	34	37	8	35	61	17	29	35	29	0	
L 718 L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS	16	19	0	25	17	0	7	18	14	0	
L 719 L2-12 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS	15	18	0	20	17	0	7	18	14	0	
L 720 L2-13 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS	39	42	23	35	61	17	43	35	29	33	
L 721 L2-14 DO YOU WORK WITH BISTABLE (FLIP-FLOP) MULTIVIBRATORS	38	41	23	30	61	17	43	35	29	33	
L 722 L2-15 DO YOU WORK WITH MONOSTABLE (ONE-SHOT) MULTIVIBRATORS	39	42	23	35	61	17	43	35	29	33	
L 723 L2-16 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS	38	42	15	35	61	17	43	35	29	17	
L 724 L2-17 DO YOU USE OR REFER TO SINGLE-SHOT MULTIVIBRATOR SYMBOLS	38	41	15	35	56	17	43	35	29	17	
L 725 L2-18 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT DIAGRAMS	38	42	15	35	61	17	43	35	29	17	
L 726 L2-19 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES	31	33	15	30	44	17	36	24	14	17	
L 727 L2-20 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS	35	37	15	35	44	17	43	29	29	17	
L 728 L2-21 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS	35	37	15	35	44	17	43	29	29	17	
L 729 L2-22 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS	37	38	23	35	50	17	36	35	29	33	
L 730 L2-23 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS	29	31	15	30	33	17	21	35	14	17	
L 731 L2-24 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS	29	31	15	35	33	17	21	29	14	17	
L 732 L2-25 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS	21	23	8	25	22	17	21	18	14	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
L 733	L3-01 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB	42	43	38	55	33	33	57	35	43	50	
L 734	L3-02 DO YOU USE OR REFER TO UP-COUNTERS	41	42	38	60	33	33	50	29	43	50	COUNTERS
L 735	L3-03 DO YOU USE OR REFER TO DOWN-COUNTERS	40	41	38	55	39	33	50	24	43	50	
L 736	L3-04 DO YOU USE OR REFER TO SERIAL COUNTERS	34	33	38	45	22	33	50	18	43	50	
L 737	L3-05 DO YOU USE OR REFER TO PARALLEL COUNTERS	30	29	38	40	28	50	43	18	14	33	
L 738	L3-06 DO YOU USE OR REFER TO RING COUNTERS	28	26	38	40	22	50	29	18	29	33	
L 739	L3-07 DO YOU USE OR REFER TO DECADE COUNTERS	40	40	46	60	33	50	57	24	14	50	
L 740	L3-08 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS	38	40	31	60	33	33	57	18	43	33	
L 741	L3-09 DO YOU USE OR REFER TO DOWN CLOCKS	36	36	31	50	39	33	50	24	29	33	
L 742	L3-10 DO YOU USE OR REFER TO UP CLOCKS	38	38	31	50	33	33	57	29	29	33	
L 743	L3-11 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	33	35	15	50	33	33	50	24	14	0	
L 744	L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	29	31	15	45	28	33	50	18	14	0	
L 745	L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS	34	35	23	50	33	50	50	24	14	0	
L 746	L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS	21	21	23	30	17	50	21	18	14	0	
L 747	L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	26	27	15	25	28	33	50	18	14	0	
L 748	L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	30	31	23	40	28	50	57	18	14	0	
L 749	L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS	32	34	15	40	17	33	64	29	14	0	
L 750	L3-18 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	23	24	15	25	17	17	50	18	14	17	
L 751	L3-19 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	18	19	15	20	17	17	29	12	14	17	
L 752	L3-20 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTERS	17	18	15	15	11	17	36	12	14	17	
L 753	L3-21 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR OTHER TYPES OF COUNTERS	17	18	15	20	6	17	36	12	14	17	
L 754	L3-22 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS	17	20	0	20	22	0	29	6	14	0	
L 755	L3-23 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES	29	30	23	40	22	50	43	24	14	0	
L 756	L3-24 DO YOU DETERMINE THE APPROPRIATE AND GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT	24	27	0	35	22	0	50	12	29	0	
M 757	M1-01 DO YOU WORK WITH SAWTOOTH WAVE GENERATORS	80	80	77	90	89	83	93	65	71	67	
M 758	M1-02 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATORS	61	58	77	55	72	83	64	47	71	67	TIMING
M 759	M1-03 DO YOU WORK WITH PULSED OSCILLATORS WITH REGENERATIVE FEEDBACK	69	67	85	85	72	83	64	47	71	83	CIRCUITS
M 760	M1-04 DO YOU WORK WITH PULSED OSCILLATORS WITHOUT REGENERATIVE FEEDBACK	63	62	69	75	67	67	71	41	71	67	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
M 761	M1-05 DO YOU WORK WITH BLOCKING OSCILLATORS	55	53	69	60	61	67	57	35	57	67	
M 762	M1-06 DO YOU USE OR REFER TO RISE TIME	73	74	69	80	83	83	93	65	57	67	
M 763	M1-07 DO YOU USE OR REFER TO FALL OR FLYBACK TIME	65	65	69	70	83	83	79	59	43	67	
M 764	M1-08 DO YOU USE OR REFER TO SWEEP TIME	79	79	77	90	89	83	93	59	71	83	
M 765	M1-09 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS	70	71	62	85	83	83	79	53	57	50	
M 766	M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS	62	64	46	80	72	50	71	47	29	50	
M 767	M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS	62	62	62	70	61	67	79	53	57	67	
M 768	M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS	55	55	54	55	67	50	71	53	29	67	
M 769	M2-01 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB	69	73	46	85	72	50	86	76	43	33	
M 770	M2-02 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS	67	71	38	80	72	50	86	71	43	17	USE OF SIGNAL GENERATORS
M 771	M2-03 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL GENERATORS	59	62	38	75	67	33	71	59	29	33	
M 772	M2-04 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS	54	58	23	55	61	33	79	59	29	17	
M 773	M2-05 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS	54	57	31	50	67	33	79	53	43	17	
M 774	M2-06 DO YOU USE AUDIO SINE-WAVE GENERATORS	53	55	38	65	50	50	71	59	14	33	
M 775	M2-07 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE	51	54	31	55	61	50	86	41	29	17	
M 776	M2-08 DO YOU USE RF GENERATORS LESS THAN 1,000 MH	34	35	23	40	44	50	43	29	14	0	
M 777	M2-09 DO YOU USE RF GENERATORS GREATER THAN 1,000 MH	24	25	15	30	33	33	36	18	14	0	
M 778	M2-10 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS	50	53	31	55	67	33	71	41	43	33	
M 779	M3-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS OR GENERATORS	92	92	92	100	94	83	79	94	71	100	
M 780	M3-02 DO YOU INSPECT MOTORS	92	92	92	100	89	83	86	94	71	100	MOTORS AND GENERATORS
M 781	M3-03 DO YOU CLEAN OR LUBRICATE MOTORS	93	93	92	100	94	83	86	94	71	100	
M 782	M3-04 DO YOU OPERATE MOTORS	93	93	92	100	94	83	86	94	71	100	
M 783	M3-05 DO YOU REMOVE OR REPLACE COMPLETE MOTORS	94	93	100	100	94	100	86	94	71	100	
M 784	M3-06 DO YOU REMOVE OR REPLACE MOTOR PARTS	90	90	92	95	89	83	86	94	71	100	
M 785	M3-07 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS	94	93	100	100	94	100	86	94	71	100	
M 786	M3-08 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS	88	88	92	95	83	100	86	88	71	83	
M 787	M3-09 DO YOU PERFORM ANY TASKS ON FIELD COILS	69	68	77	60	56	67	79	82	71	83	
M 788	M3-10 DO YOU PERFORM ANY TASKS ON ARMATURES	81	81	77	75	83	50	86	94	71	100	
M 789	M3-11 DO YOU PERFORM ANY TASKS ON ROTORS	80	80	77	70	89	67	79	88	71	83	
M 790	M3-12 DO YOU PERFORM ANY TASKS ON BRUSHES	93	93	92	100	94	83	86	94	71	100	
M 791	M3-13 DO YOU PERFORM ANY TASKS ON SLIP RINGS	77	77	77	70	89	67	64	82	71	83	
M 792	M3-14 DO YOU PERFORM ANY TASKS ON COMMUTATORS	80	81	69	80	89	50	71	82	71	83	
M 793	M3-15 DO YOU PERFORM ANY TASKS ON POLE PIECES	67	67	69	70	56	67	71	71	71	67	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
M 794	M3-16 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OF THE FORCE OR TORQUE CREATED BY A MOTOR	20	20	23	25	11	33	21	16	14	17	
M 795	M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR	34	32	46	35	22	33	36	29	29	50	
M 796	M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS	22	23	15	30	11	17	29	18	14	17	
M 797	M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS	76	75	85	80	78	67	64	76	71	100	
M 798	M3-20 DO YOU WORK WITH INDUCTION MOTORS	77	75	92	80	72	83	71	82	71	100	
M 799	M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS	59	56	77	65	56	67	57	59	43	83	
M 800	M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS	74	75	69	75	83	67	86	76	43	67	
M 801	M3-23 DO YOU INSPECT GENERATORS	42	42	46	45	39	50	50	41	43	33	
M 802	M3-24 DO YOU CLEAN OR LUBRICATE GENERATORS	42	43	38	45	39	33	50	35	29	33	
M 803	M3-25 DO YOU OPERATE GENERATORS	44	45	38	45	39	33	57	41	43	33	
M 804	M3-26 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS	38	38	38	45	33	33	43	35	29	33	
M 805	M3-27 DO YOU REMOVE OR REPLACE GENERATOR PARTS	39	40	38	45	33	33	43	35	29	33	
M 806	M3-28 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS	39	40	38	45	39	33	43	35	29	33	
M 807	M3-29 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS	37	37	31	40	33	33	43	35	29	17	
N 808	N1-01 DO YOU WORK WITH METERS IN YOUR PRESENT JOB	88	88	85	95	89	83	86	94	71	83	
N 809	N1-02 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF PERMANENT MAGNETS	48	51	31	70	61	33	50	24	43	33	
N 810	N1-03 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF MOVING COILS	46	48	31	60	67	17	50	24	43	50	METER MOVEMENTS
N 811	N1-04 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS	44	48	15	60	61	17	50	24	43	17	
N 812	N1-05 DO YOU READ METER SCALES	93	92	100	95	89	100	86	100	86	100	
N 813	N1-06 DO YOU EXTEND THE RANGE OF AMMETERS	53	53	54	70	50	33	50	53	57	67	
N 814	N1-07 DO YOU ZERO OHMMETERS	94	93	100	95	94	100	86	100	86	100	
N 815	N1-08 DO YOU ZERO AMMETERS	63	62	77	80	67	67	50	41	57	83	
N 816	N1-09 DO YOU EXTEND THE RANGE OF VOLTMETERS	63	63	62	75	61	33	57	71	71	83	
N 817	N1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)	74	75	69	80	83	50	71	65	71	83	
N 818	N2-01 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB	15	18	0	20	22	0	21	18	0	0	
N 819	N2-02 DO YOU INSPECT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	15	18	0	20	22	0	21	18	0	0	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS
N 820	N2-03 DO YOU CLEAN MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	13	14	0	20	22	0	7	12	0	0	
N 821	N2-04 DO YOU ADJUST MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	13	15	0	20	22	0	7	18	0	0	
N 822	N2-05 DO YOU TROUBLESHOOT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	16	19	0	20	22	0	21	24	0	0	
N 823	N2-06 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	16	19	0	20	22	0	21	24	0	0	
N 824	N2-07 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS	13	15	0	20	17	0	14	18	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
N 825	N2-08 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS	10	11	0	20	11	0	7	6	0	0	
N 826	N2-09 DO YOU INTEPPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	13	15	0	20	17	0	21	12	0	0	
N 827	N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	13	14	0	20	17	0	14	12	0	0	
N 828	N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS	7	8	0	20	6	0	0	6	0	0	
N 829	N2-12 DO YOU USE OR REFER TO COERCIVE FORCE IN SATURABLE REACTORS	7	8	0	20	6	0	0	6	0	0	
N 830	N2-13 DO YOU USE OR REFER TO RESIDUAL MAGNETISM IN SATURABLE REACTORS	9	10	0	20	6	0	14	6	0	0	
N 831	N2-14 DO YOU USE OR REFER TO FLUX DENSITY IN SATURABLE REACTORS	8	9	0	20	11	0	0	6	0	0	
N 832	N2-15 DO YOU USE OR REFER TO POINT OF SATURATION IN SATURABLE REACTORS	9	10	0	20	11	0	7	6	0	0	
N 833	N2-16 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS	11	12	0	20	11	0	14	12	0	0	
N 834	N3-01 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB	53	57	23	70	56	33	64	53	43	17	WAVESHAPING CIRCUITS
N 835	N3-02 DO YOU USE OR REFER TO TRANSIENT INTERVALS	47	49	31	60	56	50	57	35	29	17	
N 836	N3-03 DO YOU USE OR REFER TO PULSE WIDTH (PW)	54	57	31	70	56	50	64	53	43	17	
N 837	N3-04 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	49	54	15	55	56	33	64	53	29	0	
N 838	N3-05 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	51	55	23	60	61	33	64	47	29	17	
N 839	N3-06 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS	51	54	31	70	50	50	57	53	43	17	
N 840	N3-07 DO YOU USE OR REFER TO INTEGRATING CIRCUITS	50	54	23	65	50	33	64	47	43	17	
N 841	N3-08 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT	43	46	23	60	50	33	50	29	29	17	
N 842	N3-09 DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT AND OUTPUT CONFIGURATION	36	37	23	55	33	33	50	12	29	17	
N 843	N3-10 DO YOU WORK WITH SQUARE WAVE GENERATORS	60	63	38	70	61	67	79	53	43	17	
N 844	N3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATORS	46	48	31	50	50	50	79	41	29	17	
O 845	O1-01 DO YOU WORK ON SINGLE SIDEBAND SYSTEMS IN YOUR PRESENT JOB	3	3	0	10	0	0	7	0	0	0	SINGLE SIDEBAND SYSTEMS
O 846	O1-02 DO YOU INSPECT SSB TRANSMIT OR RECEIVE SYSTEMS	3	3	0	10	0	0	7	0	0	0	
O 847	O1-03 DO YOU CLEAN SSB TRANSMIT OR RECEIVE SYSTEMS	3	3	0	10	0	0	7	0	0	0	
O 848	O1-04 DO YOU ALIGN SSB TRANSMIT OR RECEIVE SYSTEMS	3	3	0	10	0	0	7	0	0	0	
O 849	O1-05 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE SYSTEMS	3	3	0	10	0	0	7	0	0	0	
O 850	O1-06 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE COMPONENTS	3	3	0	10	0	0	7	0	0	0	
O 851	O1-07 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE SYSTEMS	3	3	0	10	0	0	7	0	0	0	
O 852	O1-08 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE COMPONENTS	3	3	0	10	0	0	7	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
0 853	01-09 DO YOU PERFORM TASKS ON SSB AUDIO AMPLIFIERS	3	3	0	10	0	0	7	0	0	0	
0 854	01-10 DO YOU PERFORM TASKS ON SSB BALANCED MODULATORS	3	3	0	10	0	0	7	0	0	0	
0 855	01-11 DO YOU PERFORM TASKS ON SSB CARRIER OSCILLATORS	2	2	0	10	0	0	0	0	0	0	
0 856	01-12 DO YOU PERFORM TASKS ON SSB LC FILTERS	2	2	0	10	0	0	0	0	0	0	
0 857	01-13 DO YOU PERFORM TASKS ON SSB CRYSTAL FILTERS	2	2	0	10	0	0	0	0	0	0	
0 858	01-14 DO YOU PERFORM TASKS ON SSB MECHANICAL FILTERS	2	2	0	10	0	0	0	0	0	0	
0 859	01-15 DO YOU PERFORM TASKS ON SSB OSCILLATORS	2	2	0	10	0	0	0	0	0	0	
0 860	01-16 DO YOU PERFORM TASKS ON SSB MIXERS	2	2	0	10	0	0	0	0	0	0	
0 861	01-17 DO YOU PERFORM TASKS ON SSB DRIVERS	2	2	0	10	0	0	0	0	0	0	
0 862	01-18 DO YOU PERFORM TASKS ON SSB POWER AMPLIFIERS	2	2	0	10	0	0	0	0	0	0	
0 863	01-19 DO YOU PERFORM TASKS ON SSB RF AMPLIFIERS	2	2	0	10	0	0	0	0	0	0	
0 864	01-20 DO YOU PERFORM TASKS ON SSB FREQUENCY CONVERTERS	2	2	0	10	0	0	0	0	0	0	
0 865	01-21 DO YOU PERFORM TASKS ON SSB IF AMPLIFIERS	2	2	0	10	0	0	0	0	0	0	
0 866	01-22 DO YOU PERFORM TASKS ON SSB DEMODULATORS	2	2	0	10	0	0	0	0	0	0	
0 867	01-23 DO YOU PERFORM TASKS ON SSB DON'T REMEMBER WHICH SSB SYSTEM STAGES	3	3	0	10	0	0	7	0	0	0	
0 868	01-24 DO YOU USE OR REFER TO SELECTIVE FADING	3	3	0	10	0	0	7	0	0	0	
0 869	01-25 DO YOU USE OR REFER TO PEAK POWER	3	3	0	10	0	0	7	0	0	0	
0 870	01-26 DO YOU USE OR REFER TO FREQUENCY STABILITY	3	3	0	10	0	0	7	0	0	0	
0 871	01-27 DO YOU USE OR REFER TO RESPONSE CURVES FOR BANDWIDTH FILTERS	3	3	0	10	0	0	7	0	0	0	
0 872	01-28 DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB TRANSMITTERS	3	3	0	10	0	0	7	0	0	0	
0 873	01-29 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB TRANSMITTER SCHEMATIC DIAGRAMS	3	3	0	10	0	0	7	0	0	0	
0 874	01-30 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB RECEIVER SCHEMATIC DIAGRAMS	3	3	0	10	0	0	7	0	0	0	
0 875	02-01 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB	9	9	8	15	6	0	29	0	0	17	
0 876	02-02 DO YOU INSPECT PULSE MODULATION SYSTEMS	9	9	8	15	6	0	29	0	0	17	PULSE MODULATION SYSTEMS
0 877	02-03 DO YOU CLEAN PULSE MODULATION SYSTEMS	9	9	8	10	6	0	29	0	0	17	
0 878	02-04 DO YOU ALIGN PULSE MODULATION SYSTEMS	8	8	8	10	6	0	29	0	0	17	
0 879	02-05 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS	9	9	8	15	6	0	29	0	0	17	
0 880	02-06 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM COMPONENTS	9	9	8	15	6	0	29	0	0	17	
0 881	02-07 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS	9	9	8	15	6	0	29	0	0	17	
0 882	02-08 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM COMPONENTS	8	8	8	15	6	0	21	0	0	17	
0 883	02-09 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) SYSTEMS	8	8	8	15	6	0	21	0	0	17	
0 884	02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDM) SYSTEMS	8	8	8	15	6	0	21	0	0	17	
0 885	02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPM) SYSTEMS	7	7	8	10	6	0	21	0	0	17	
0 886	02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) SYSTEMS	5	4	8	10	6	0	7	0	0	17	
0 887	02-13 DO YOU WORK ON LINE PULSING MODULATION SYSTEMS	7	7	8	10	6	0	21	0	0	17	
0 888	02-14 DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF MODULATION SYSTEM	6	5	8	10	6	0	14	0	0	17	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010
0 889	02-15 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLIES	8	8	8	15	6	0	21	0	0	17
0 890	02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODES	7	7	8	10	6	0	21	0	0	17
0 891	02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORKS	8	8	8	15	6	0	21	0	0	17
0 892	02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMERS	8	8	8	15	6	0	21	0	0	17
0 893	02-19 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATRONS	7	8	0	15	0	0	29	0	0	0
0 894	02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMERS	8	9	0	15	6	0	29	0	0	0
0 895	02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBES	4	3	8	10	0	0	7	0	0	17
0 896	02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIERS	5	5	0	15	0	0	14	0	0	0
0 897	02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTERS	6	5	8	10	0	0	21	0	0	17
0 898	02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIERS	5	4	8	15	0	0	7	0	0	17
0 899	02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTORS	7	8	0	15	0	0	29	0	0	0
0 900	02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM VIDEO AMPLIFIERS	3	3	0	10	0	0	7	0	0	0
0 901	02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIERS	3	3	0	10	0	0	7	0	0	0
0 902	02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DON'T REMEMBER WHICH PULSE MODULATION SYSTEM STAGES	4	4	0	10	0	0	14	0	0	0
0 903	02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	5	5	0	15	0	0	14	0	0	0
0 904	02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	5	5	0	15	0	0	14	0	0	0
0 905	02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW)	5	5	0	15	0	0	14	0	0	0
0 906	02-32 DO YOU USE OR REFER TO PULSE SHAPE	5	5	0	15	0	0	14	0	0	0
0 907	02-33 DO YOU USE OR REFER TO PEAK POWER	4	4	0	10	0	0	14	0	0	0
0 908	02-34 DO YOU USE OR REFER TO AVERAGE POWER	4	4	0	10	0	0	14	0	0	0
0 909	02-35 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	4	4	0	10	0	0	14	0	0	0
0 910	02-36 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	5	5	0	15	0	0	14	0	0	0
0 911	02-37 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS	4	4	0	10	0	0	14	0	0	0
0 912	02-38 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS	6	5	8	15	0	0	14	0	0	17
0 913	02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS	5	4	8	10	6	0	7	0	0	17
0 914	03-01 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB	5	5	0	5	0	0	14	6	0	0
0 915	03-02 DO YOU INSPECT ANTENNAS	5	5	0	5	0	0	14	6	0	0

ANTENNAS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010
0 916 03-03 DO YOU CLEAN ANTENNAS	4	4	0	5	0	0	14	0	0	0
0 917 03-04 DO YOU PHYSICALLY ALIGN ANTENNAS	4	4	0	5	0	0	14	0	0	0
0 918 03-05 DO YOU ELECTRICALLY ALIGN ANTENNAS	3	3	0	5	0	0	14	0	0	0
0 919 03-06 DO YOU TROUBLESHOOT TO ANTENNAS	4	4	0	5	0	0	14	0	0	0
0 920 03-07 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS	4	4	0	5	0	0	14	0	0	0
0 921 03-08 DO YOU REMOVE OR INSTALL ANTENNAS	5	5	0	5	0	0	14	6	0	0
0 922 03-09 DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS	4	4	0	5	0	0	14	0	0	0
0 923 03-10 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF E OR ELECTRIC FIELD LINES	3	3	0	5	0	0	14	0	0	0
0 924 03-11 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF H OR MAGNETIC FIELD LINES	3	3	0	5	0	0	14	0	0	0
0 925 03-12 DO YOU DETERMINE THE DIRECTION OF THE MAGNETIC LINES IN RELATION TO THE ELECTRIC LINES OF FORCE FOR ANTENNAS	3	3	0	5	0	0	14	0	0	0
0 926 03-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE OF CORRECT LENGTH (HALF-WAVE) ACT AS INDUCTIVE LOADS TO THE GENERATOR	4	4	0	5	0	0	14	0	0	0
0 927 03-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE LONGER THAN A HALF-WAVE ACT AS INDUCTIVE LOADS TO THE GENERATOR	4	4	0	5	0	0	14	0	0	0
0 928 03-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE SHORTER THAN A HALF-WAVE ACT AS CAPACITIVE LOADS TO THE GENERATOR	3	3	0	5	0	0	7	0	0	0
0 929 03-16 DO YOU WORK WITH HERTZ ANTENNAS	5	5	0	5	0	0	14	6	0	0
0 930 03-17 DO YOU WORK WITH MARCONI ANTENNAS	4	4	0	5	0	0	14	6	0	0
0 931 03-18 DO YOU WORK WITH BROADSIDE ARRAYS	2	2	0	5	0	0	7	0	0	0
0 932 03-19 DO YOU WORK WITH END-FIRE ARRAYS	2	2	0	5	0	0	7	0	0	0
0 933 03-20 DO YOU WORK WITH CARDIOID ARRAYS	2	2	0	5	0	0	7	0	0	0
0 934 03-21 DO YOU WORK WITH COLLINEAR ARRAYS	2	2	0	5	0	0	7	0	0	0
0 935 03-22 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC INDUCTION FIELDS WHEN WORKING WITH ANTENNAS	3	3	0	5	0	0	14	0	0	0
0 936 03-23 DO YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS	3	3	0	5	0	0	14	0	0	0
0 937 03-24 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC RADIATION FIELDS WHEN WORKING WITH ANTENNAS	3	3	0	5	0	0	14	0	0	0
0 938 03-25 DO YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS	3	3	0	5	0	0	14	0	0	0
0 939 03-26 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA RADIATION	3	3	0	5	0	0	14	0	0	0
0 940 03-27 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA INDUCTION FIELD	3	3	0	5	0	0	14	0	0	0
0 941 03-28 ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED	3	3	0	5	0	0	14	0	0	0
0 942 03-29 ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED	3	3	0	5	0	0	14	0	0	0
0 943 03-30 DO YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON	3	3	0	5	0	0	14	0	0	0
0 944 03-31 DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT, ANTENNAS OF CORRECT LENGTH FOR SPECIFIC WAVELENGTHS	3	3	0	5	0	0	14	0	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
O 945	03-32 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS	2	2	0	5	0	0	7	0	0	0	
O 946	03-33 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS	2	2	0	5	0	0	7	0	0	0	
O 947	03-34 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS	2	2	0	5	0	0	7	0	0	0	
O 948	03-35 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN DON'T REMEMBER WHAT KIND OF ELEMENTS	2	2	0	5	0	0	7	0	0	0	
O 949	03-36 DO YOU WORK ON UNIDIRECTIONAL ANTENNAS	3	3	0	5	0	0	14	0	0	0	
O 950	03-37 DO YOU WORK ON BIDIRECTIONAL ANTENNAS	4	4	0	5	0	0	14	6	0	0	
O 951	03-38 DO YOU WORK ON DON'T REMEMBER THE DIRECTIONALITY	3	3	0	5	0	0	7	0	0	0	
O 952	03-39 DO YOU WORK WITH ROTAR ANTENNA ARRAYS	2	2	0	5	0	0	7	0	0	0	
P 953	P1-01 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES (TRANSMISSION LINES ARE DEFINED TO INCLUDE LEADS BETWEEN RECEIVERS AND ANTENNAS, TELEPHONE LEADS, AS WELL AS HIGH VOLTAGE POWER LINES, ETC. DO NOT CONSIDER WAVEGUIDES AS TRANSMISSION LINES	6	7	0	5	0	0	21	6	0	0	TRANSMISSION LINES
P 954	P1-02 DO YOU REFER TO OR USE COPPER LOSS OR I2R LOSS IN TRANSMISSION LINES	3	3	0	5	0	0	7	0	0	0	
P 955	P1-03 DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES	3	3	0	5	0	0	7	0	0	0	
P 956	P1-04 DO YOU REFER TO OR USE RADIATION LOSS IN TRANSMISSION LINES	2	2	0	5	0	0	7	0	0	0	
P 957	P1-05 DO YOU USE OR REFER TO DIELECTRIC LOSS IN TRANSMISSION LINES	2	2	0	5	0	0	7	0	0	0	
P 958	P1-06 DO YOU USE OR REFER TO LEAKAGE LOSSES IN TRANSMISSION LINES	3	3	0	5	0	0	7	6	0	0	
P 959	P1-07 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES	1	1	0	5	0	0	0	0	0	0	
P 960	P1-08 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES	2	2	0	5	0	0	7	0	0	0	
P 961	P1-09 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES	2	2	0	5	0	0	0	6	0	0	
P 962	P1-10 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES	5	5	0	5	0	0	21	6	0	0	
P 963	P1-11 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES	3	3	0	5	0	0	14	0	0	0	
P 964	P1-12 DO YOU TROUBLESHOOT TRANSMISSION LINES	4	4	0	5	0	0	21	0	0	0	
P 965	P1-13 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)	2	2	0	5	0	0	0	6	0	0	
P 966	P1-14 DO YOU SELECT APPROPRIATE TRANSMISSION LINES TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS	3	3	0	5	0	0	14	0	0	0	
P 967	P1-15 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS	5	5	0	5	0	0	21	6	0	0	
P 968	P1-16 DO YOU MEASURE STANDING WAVE RATIOS (SR) OF TRANSMISSION LINES	2	2	0	5	0	0	7	0	0	0	
P 969	P1-17 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	1	1	0	5	0	0	0	0	0	0	
P 970	P1-18 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH MATCHING TRANSFORMERS TO MATCH TRANSMISSION LINES TO LOADS	1	1	0	5	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
P 971 P1-19 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS	4	4	0	5	0	0	21	0	0	0	
P 972 P1-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING	1	1	0	5	0	0	0	0	0	0	
P 973 P1-21 DO YOU SELECT THE TYPE OF TRANSMISSION LINE NEEDED FOR PARTICULAR JOBS WITHOUT REFERRING TO TECHNICAL DATA	1	1	0	5	0	0	0	0	0	0	
P 974 P1-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	1	1	0	5	0	0	0	0	0	0	
P 975 P1-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	1	1	0	5	0	0	0	0	0	0	
P 976 P1-24 DO YOU USE OR REFER TO THE TERM CUTOFF FREQUENCY OF TRANSMISSION LINES	1	1	0	5	0	0	0	0	0	0	
P 977 P1-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES	1	1	0	5	0	0	0	0	0	0	
P 978 P1-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES	1	1	0	5	0	0	0	0	0	0	
P 979 P1-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTH FOR GIVEN FREQUENCIES	2	1	8	5	0	17	0	0	0	0	
P 980 P1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT AS THE FREQUENCY INCREASES AND THE PHYSICAL LENGTH OF TRANSMISSION LINES REMAIN CONSTANT, THE ELECTRICAL LENGTH INCREASES	2	2	0	5	0	0	7	0	0	0	
P 981 P1-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES	1	1	0	5	0	0	0	0	0	0	
P 982 P1-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES	1	1	0	5	0	0	0	0	0	0	
P 983 P1-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING	1	1	0	5	0	0	0	0	0	0	
P 984 P2-01 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB	2	2	0	5	6	0	0	0	0	0	WAVEGUIDES AND CAVITY RESONATORS
P 985 P2-02 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS	2	2	0	5	6	0	0	0	0	0	
P 986 P2-03 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS	1	1	0	5	0	0	0	0	0	0	
P 987 P2-04 DO YOU BEND WAVEGUIDES OR CAVITY RESONATORS	1	1	0	5	0	0	0	0	0	0	
P 988 P2-05 DO YOU TWIST WAVEGUIDES OR CAVITY RESONATORS	1	1	0	5	0	0	0	0	0	0	
P 989 P2-06 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS	1	1	0	5	0	0	0	0	0	0	
P 990 P2-07 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS	1	1	0	5	0	0	0	0	0	0	
P 991 P2-08 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS	2	2	0	5	6	0	0	0	0	0	
P 992 P2-09 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES	1	1	0	5	0	0	0	0	0	0	
P 993 P2-10 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS	1	1	0	5	0	0	0	0	0	0	
P 994 P2-11 DO YOU REMOVE OR INSTALL DUMMY LOADS	1	1	0	5	0	0	0	0	0	0	
P 995 P2-12 DO YOU REMOVE OR INSTALL E BENDS	1	1	0	5	0	0	0	0	0	0	
P 996 P2-13 DO YOU REMOVE OR INSTALL H BENDS	1	1	0	5	0	0	0	0	0	0	
P 997 P2-14 DO YOU REMOVE OR INSTALL OTHER BENDS	1	1	0	5	0	0	0	0	0	0	
P 998 P2-15 DO YOU REMOVE OR INSTALL CHOKE JOINTS	1	1	0	5	0	0	0	0	0	0	
P 999 P2-16 DO YOU REMOVE OR INSTALL ROTATING JOINTS	1	1	0	5	0	0	0	0	0	0	
P1000 P2-17 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS	1	1	0	5	0	0	0	0	0	0	
P1001 P2-18 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS	1	1	0	5	0	0	0	0	0	0	
P1002 P2-19 DO YOU USE OR REFER TO >A> WALL OF WAVEGUIDES	1	1	0	5	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010
P1003 P2-20 DO YOU USE OR REFER TO >B> WALL OF WAVEGUIDES	1	1	0	5	0	0	0	0	0	0
P1004 P2-21 DO YOU USE OR REFER TO CUTOFF FREQUENCY OF WAVEGUIDES	1	1	0	5	0	0	0	0	0	0
P1005 P2-22 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES	1	1	0	5	0	0	0	0	0	0
P1006 P2-23 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES	1	1	0	5	0	0	0	0	0	0
P1007 P2-24 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS	1	1	0	5	0	0	0	0	0	0
P1008 P2-25 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS	1	1	0	5	0	0	0	0	0	0
P1009 P2-26 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS	1	1	0	5	0	0	0	0	0	0
P1010 P2-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST WAVEGUIDES ARE MADE WITH A >B> WALL SIZE OF .7 WAVELENGTHS OF THE OPERATING FREQUENCY	1	1	0	5	0	0	0	0	0	0
P1011 P2-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST >A> WALLS RANGE FROM .2 TO .5 WAVELENGTHS IN SIZE, WITH .35 USED AS AN AVERAGE	1	1	0	5	0	0	0	0	0	0
P1012 P2-29 ARE YOU CONCERNED WITH THE MATERIAL (SUCH AS BRASS) WHICH WAVEGUIDES ARE MADE OF	1	1	0	5	0	0	0	0	0	0
P1013 P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION	1	1	0	5	0	0	0	0	0	0
P1014 P2-31 DO YOU USE THE RIGHT HAND RULE TO DETERMINE THE DIRECTION OF PROPAGATION, DIRECTION OF >E> FIELD, OR DIRECTION OF >H> FIELD IN WAVEGUIDES	1	1	0	5	0	0	0	0	0	0
P1015 P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK >E> OR >H> LINES IN WAVEGUIDES	1	1	0	5	0	0	0	0	0	0
P1016 P2-33 DO YOU MEASURE THE TIME PHASE OF >E> OR >H> LINES IN WAVEGUIDES	1	1	0	5	0	0	0	0	0	0
P1017 P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF >E> OR >H> LINES IN WAVEGUIDES	1	1	0	5	0	0	0	0	0	0
P1018 P2-35 ARE HIGH POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	2	2	0	5	6	0	0	0	0	0
P1019 P2-36 ARE LOW POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	2	2	0	5	6	0	0	0	0	0
P1020 P2-37 ARE LOOPS USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	1	1	0	5	0	0	0	0	0	0
P1021 P2-38 ARE APERTURES (WINDOWS OR IRISES) USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	1	1	0	5	0	0	0	0	0	0
P1022 P2-39 ARE DON'T REMEMBER THE KIND OF ENERGY COUPLING USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	1	1	0	5	0	0	0	0	0	0
P1023 P2-40 DO YOU DETERMINE WHERE PROBES SHOULD BE MOUNTED IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	1	1	0	5	0	0	0	0	0	0
P1024 P2-41 DO YOU DETERMINE THE POSITIONING OF LOOPS IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	1	1	0	5	0	0	0	0	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
P1025	P2-42 DO YOU DETERMINE THE POSITIONING OR SIZE OF APERTURES IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	1	1	0	5	0	0	0	0	0	0	
P1026	P2-43 ARE CHOKE JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	1	1	0	5	0	0	0	0	0	0	
P1027	P2-44 ARE ROTATING JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	1	1	0	5	0	0	0	0	0	0	
P1028	P2-45 ARE DON'T REMEMBER THE KIND OF JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	1	1	0	5	0	0	0	0	0	0	
P1029	P2-46 DO YOU TUNE CAVITY RESONATORS USING CAPACITIVE TUNING	2	2	0	5	6	0	0	0	0	0	
P1030	P2-47 DO YOU TUNE CAVITY RESONATORS USING INDUCTIVE TUNING	2	2	0	5	6	0	0	0	0	0	
P1031	P2-48 DO YOU TUNE CAVITY RESONATORS USING VOLUME TUNING	1	1	0	5	0	0	0	0	0	0	
P1032	P2-49 DO YOU TUNE CAVITY RESONATORS USING DON'T REMEMBER THE METHOD OF TUNING	1	1	0	5	0	0	0	0	0	0	
P1033	P2-50 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY RESONATORS	2	2	0	5	6	0	0	0	0	0	
P1034	P3-01 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR MAGNETRONS	12	12	8	25	11	17	21	6	0	0	MICROWAVE AMPLIFIERS AND OSCILLATORS
P1035	P3-02 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE	9	9	8	20	17	17	0	0	0	0	
P1036	P3-03 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME	4	4	0	15	6	0	0	0	0	0	
P1037	P3-04 DO YOU USE OR REFER TO LEAD INDUCTANCE	5	4	8	15	6	17	0	0	0	0	
P1038	P3-05 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY	8	8	8	15	11	17	14	0	0	0	
P1039	P3-06 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION	6	7	0	20	6	0	0	0	0	0	
P1040	P3-07 DO YOU USE OR REFER TO ELECTRON BUNCHING	5	5	0	15	6	0	0	0	0	0	
P1041	P3-08 DO YOU WORK WITH TWO-CAVITY KLYSTRONS	3	3	0	10	6	0	0	0	0	0	
P1042	P3-09 DO YOU WORK WITH THREE-CAVITY KLYSTRONS	2	2	0	10	0	0	0	0	0	0	
P1043	P3-10 DO YOU WORK WITH REFLEX KLYSTRONS	3	3	0	10	0	0	0	6	0	0	
P1044	P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)	2	2	0	10	0	0	0	0	0	0	
P1045	P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS	2	2	0	10	0	0	0	0	0	0	
P1046	P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS	2	2	0	10	0	0	0	0	0	0	
P1047	P3-14 DO YOU WORK WITH MAGNETRONS	10	11	0	20	11	0	21	6	0	0	
P1048	P3-15 DO YOU INSPECT KLYSTRONS OR TWT	4	3	8	10	0	17	0	6	0	0	
P1049	P3-16 DO YOU CLEAN KLYSTRONS OR TWT	3	2	8	10	0	17	0	0	0	0	
P1050	P3-17 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY	4	3	8	10	0	17	0	6	0	0	
P1051	P3-18 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY	3	2	8	10	0	17	0	0	0	0	
P1052	P3-19 DO YOU PERFORM OPERATIONAL CHECKS OF KLYSTRONS OR TWT	3	2	8	10	0	17	0	0	0	0	
P1053	P3-20 DO YOU TROUBLESHOOT KLYSTRONS OR TWT	4	3	8	10	0	17	0	6	0	0	
P1054	P3-21 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRON OR TWT	4	3	8	10	0	17	0	6	0	0	
P1055	P3-22 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS	2	2	0	10	0	0	0	0	0	0	
P1056	P3-23 DO YOU INSPECT PARAMETRIC AMPLIFIERS	2	2	0	10	0	0	0	0	0	0	
P1057	P3-24 DO YOU CLEAN PARAMETRIC AMPLIFIERS	2	2	0	10	0	0	0	0	0	0	
P1058	P3-25 DO YOU ADJUST PARAMETRIC AMPLIFIERS	2	2	0	10	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010
P1059 P3-26 DO YOU TUNE PARAMETRIC AMPLIFIERS	2	2	0	10	0	0	0	0	0	0
P1060 P3-27 DO YOU PERFORM OPERATIONAL CHECKS OF PARAMETRIC AMPLIFIERS	2	2	0	10	0	0	0	0	0	0
P1061 P3-28 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS	2	2	0	10	0	0	0	0	0	0
P1062 P3-29 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIER	2	2	0	10	0	0	0	0	0	0
P1063 P3-30 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS	2	2	0	10	0	0	0	0	0	0
P1064 P3-31 DO YOU INSPECT MAGNETRONS	12	12	8	25	11	17	21	6	0	0
P1065 P3-32 DO YOU CLEAN MAGNETRONS	9	9	8	15	11	17	21	0	0	0
P1066 P3-33 DO YOU ADJUST MAGNETRONS	8	8	8	15	11	17	14	0	0	0
P1067 P3-34 DO YOU TUNE MAGNETRONS	9	9	8	20	11	17	14	0	0	0
P1068 P3-35 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS	12	12	8	25	11	17	21	6	0	0
P1069 P3-36 DO YOU TROUBLESHOOT MAGNETRONS	11	11	8	25	11	17	21	0	0	0
P1070 P3-37 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRON	12	12	8	25	11	17	21	6	0	0
P1071 P3-38 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS	4	4	0	10	0	0	14	0	0	0
P1072 P3-39 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS COLLECTOR PLATES	4	4	0	15	0	0	0	6	0	0
P1073 P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER CAVITIES	3	3	0	15	0	0	0	0	0	0
P1074 P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER GRIDS	4	4	0	15	0	0	0	6	0	0
P1075 P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS FEEDBACK LOOPS	3	2	8	10	0	17	0	0	0	0
P1076 P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS DRIFT SPACES	2	2	0	10	0	0	0	0	0	0
P1077 P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER GRIDS	2	2	0	10	0	0	0	0	0	0
P1078 P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER CAVITIES	2	2	0	10	0	0	0	0	0	0
P1079 P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CONTROL GRIDS	4	3	8	10	0	17	7	0	0	0
P1080 P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATHODES	4	3	8	10	0	17	7	0	0	0
P1081 P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON REPELLER (REFLECTOR) PLATES	2	2	0	10	0	0	0	0	0	0
P1082 P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRIDS	3	3	0	10	0	0	0	6	0	0
P1083 P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRID CAVITY GAPS	2	2	0	10	0	0	0	0	0	0
P1084 P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON RESONANT CAVITIES	2	2	0	10	0	0	0	0	0	0
P1085 P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON MAGNETIC COUPLING LOOPS	2	2	0	10	0	0	0	0	0	0
P1086 P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON FILAMENTS	3	3	0	10	0	0	0	6	0	0
P1087 P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON CATHODES	3	3	0	10	0	0	0	6	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
P1088	P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON OUTPUT LEADS	2	2	0	10	0	0	0	0	0	0	
P1089	P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES FILAMENTS	4	3	8	15	0	17	0	0	0	0	
P1090	P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES CATHODES	4	3	8	15	0	17	0	0	0	0	
P1091	P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MODULATOR GRIDS	3	2	8	10	0	17	0	0	0	0	
P1092	P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ANODES	3	2	8	10	0	17	0	0	0	0	
P1093	P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES HELIXES	3	2	8	10	0	17	0	0	0	0	
P1094	P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES COLLECTORS	3	2	8	10	0	17	0	0	0	0	
P1095	P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MAGNETS	3	2	8	10	0	17	0	0	0	0	
P1096	P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ATTENUATORS	3	2	8	10	0	17	0	0	0	0	
P1097	P3-64 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE CIRCULATORS	2	2	0	10	0	0	0	0	0	0	
P1098	P3-65 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER SIGNAL CAVITIES	2	2	0	10	0	0	0	0	0	0	
P1099	P3-66 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER IDLER CAVITIES	2	2	0	10	0	0	0	0	0	0	
P1100	P3-67 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER VARACTOR DIODES	2	2	0	10	0	0	0	0	0	0	
P1101	P3-68 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE ISOLATORS	2	2	0	10	0	0	0	0	0	0	
P1102	P3-69 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER REVERSE-BIAS BATTERIES	2	2	0	10	0	0	0	0	0	0	
P1103	P3-70 DO YOU PERFORM TASKS ON ANODES	8	8	8	15	6	17	14	6	0	0	
P1104	P3-71 DO YOU PERFORM TASKS ON ANODE COOLING PINS	6	7	0	15	6	0	14	0	0	0	
P1105	P3-72 DO YOU PERFORM TASKS ON COUPLING LOOPS	7	8	0	20	6	0	14	0	0	0	
P1106	P3-73 DO YOU PERFORM TASKS ON HEATER LEADS	8	9	0	25	6	0	14	0	0	0	
P1107	P3-74 DO YOU PERFORM TASKS ON RESONANT CAVITIES	7	8	0	15	11	0	14	0	0	0	
P1108	P3-75 DO YOU PERFORM TASKS ON CATHODES	9	9	8	20	6	17	14	6	0	0	
P1109	P3-76 DO YOU PERFORM TASKS ON MAGNETS	8	8	8	20	6	17	14	0	0	0	
Q1110	Q1-01 DO YOU USE OR REFER TO STORAGE REGISTERS	29	32	8	35	44	17	21	18	29	0	
Q1111	Q1-02 DO YOU USE OR REFER TO SHIFT REGISTERS	29	31	15	35	44	33	21	18	29	0	REGISTERS
Q1112	Q1-03 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS	27	30	8	35	44	17	21	18	14	0	
Q1113	Q1-04 DO YOU USE OR REFER TO LOGIC SYMBOLS OF STORAGE REGISTERS	27	30	8	35	44	17	21	18	14	0	
Q1114	Q1-05 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	28	31	8	40	44	17	21	18	14	0	
Q1115	Q1-06 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF REGISTERS	27	30	8	40	33	17	29	18	14	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
Q1116	Q1-07 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES HAVE PASSED	26	29	8	30	44	17	29	18	14	0	
Q1117	Q2-01 DO YOU WORK WITH DIGITAL COUNTERS, REGISTERS, OR STORAGE DEVICES IN YOUR PRESENT JOB	31	31	31	25	39	50	36	24	29	17	
Q1118	Q2-02 DO YOU USE OR REFER TO DELAY LINES	10	10	8	15	11	17	7	6	0	0	STORAGE DEVICES
Q1119	Q2-03 DO YOU USE OR REFER TO MAGNETIC CORES	10	11	0	10	11	0	7	6	0	0	
Q1120	Q2-04 DO YOU USE OR REFER TO MAGNETIC DRUMS	7	8	0	10	11	0	0	6	0	0	
Q1121	Q2-05 DO YOU USE OR REFER TO MAGNETIC TAPES	10	11	0	10	11	0	0	12	0	0	
Q1122	Q2-06 DO YOU USE OR REFER TO ACCESS TIME OR SPEED OR MEMORY SYSTEMS	15	16	8	15	28	17	0	12	14	0	
Q1123	Q2-07 DO YOU USE OR REFER TO WORD CAPACITY OF MEMORY SYSTEMS	12	11	15	15	17	33	7	6	0	0	
Q1124	Q2-08 DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS	7	8	0	10	6	0	7	6	0	0	
Q1125	Q2-09 DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES	13	13	8	20	11	17	14	12	0	0	
Q1126	Q3-01 IN YOUR PRESENT JOB, DO YOU WORK WITH DIGITAL-TO-ANALOG (D/A) CONVERTERS, ANALOG-TO-DIGITAL (A/D) CONVERTERS, OR BINARY-TO-DECIMAL READOUT CONVERTERS	32	34	15	40	33	33	43	24	14	0	DIGITAL TO ANALOG CONVERTERS
Q1127	Q3-02 DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT VOLTAGES	13	14	0	25	6	0	29	12	0	0	
Q1128	Q3-03 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE COUNT IN ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS IS DETERMINED BY ADDING THE DENOMINATORS OF THE RESISTORS	13	15	0	20	11	0	29	18	0	0	
Q1129	Q3-04 DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS	18	21	0	25	22	0	36	12	14	0	
Q1130	Q3-05 DO YOU PERFORM SAMPLE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	21	23	8	35	17	17	29	18	14	0	
Q1131	Q3-06 DO YOU PERFORM HOLD FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	21	23	8	35	17	17	29	18	14	0	
Q1132	Q3-07 DO YOU PERFORM COMPARE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	21	23	8	35	17	17	29	18	14	0	
Q1131	Q3-08 DO YOU PERFORM DIGITIZE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	21	23	8	35	17	17	29	18	14	0	
Q1134	Q3-09 DO YOU PERFORM DON'T REMEMBER WHICH FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	12	13	0	20	11	0	29	6	0	0	
Q1135	Q3-10 DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS	22	24	8	35	22	17	29	12	14	0	
Q1136	Q3-11 DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS	22	24	8	35	22	17	29	12	14	0	
Q1137	Q3-12 DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS	21	23	8	35	22	17	29	12	14	0	
Q1138	Q3-13 DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS	23	25	8	35	22	17	29	18	14	0	
Q1139	Q3-14 DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS	17	20	0	25	17	0	36	12	0	0	

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TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
R1140	R1-01 DO YOU WORK WITH PHANTASTRON CIRCUITRY IN YOUR PRESENT JOB	5	5	0	15	6	0	7	0	0	0	PHANTASTRONS
R1141	R2-01 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS	32	34	15	45	33	33	50	18	14	0	SCHMITT TRIGGERS
R1142	R2-02 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS	30	31	23	35	33	50	36	18	29	0	
R1143	R2-03 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS	31	33	15	45	33	33	43	18	14	0	
R1144	R3-01 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES	37	41	8	45	39	0	57	35	0	17	CABLE FABRICATION
R1145	R3-02 DO YOU FABRICATE COAXIAL CABLES	37	37	31	35	33	33	43	41	29	33	
S1146	S1-01 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS ON VISUAL READOUT SYSTEMS	64	65	62	70	72	33	64	65	57	83	INPUT/OUTPUT DEVICES
S1147	S1-02 DO YOU PERFORM ANY TASKS ON NIXIE LIGHTS OR NIXIE LIGHT DECODER SYSTEMS	52	52	54	50	72	33	50	47	29	67	
S1148	S1-03 DO YOU ANALYZE NIXIE LIGHT DECODER SYSTEMS USING BOOLEAN ALGEBRA	17	19	8	30	17	0	7	12	14	17	
S1149	S2-01 DO YOU WORK WITH PHOTO TUBES IN YOUR PRESENT JOB	83	81	92	85	83	83	93	71	86	100	PHOTO SENSITIVE DEVICES
S1150	S3-01 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS	36	37	23	40	44	33	36	29	43	17	
S1151	S3-02 DO YOU MEASURE EXCITATION FREQUENCIES	19	20	15	25	11	17	21	18	29	17	
S1152	S3-03 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIPS	22	23	15	30	17	17	21	18	29	17	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)
S1153	S3-04 DO YOU USE OR REFER TO EXCITATION FREQUENCIES	20	23	0	25	22	0	14	18	29	0	
S1154	S3-05 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIPS	21	23	8	30	17	0	14	18	29	17	
S1155	S3-06 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	32	34	15	25	39	33	36	29	43	0	
S1156	S3-07 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	30	32	15	30	39	33	29	29	29	0	
S1157	S3-08 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	30	33	8	30	39	17	36	29	29	0	
S1158	S3-09 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	32	35	8	35	44	17	36	29	43	0	
T1159	T1-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS	21	22	15	20	22	17	29	0	0	17	
T1160	T1-02 DO YOU INSPECT INFRARED SYSTEMS	21	22	15	20	22	17	29	0	0	17	
T1161	T1-03 DO YOU CLEAN INFRARED SYSTEMS	21	22	15	20	22	17	29	0	0	17	INFRARED
T1162	T1-04 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS	20	21	15	20	22	17	29	0	0	17	
T1163	T1-05 DO YOU OPERATE INFRARED SYSTEMS	19	20	15	20	22	17	29	0	0	17	
T1164	T1-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS	21	22	15	20	22	17	29	0	0	17	
T1165	T1-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS	20	21	15	20	22	17	29	0	0	17	
T1166	T1-08 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS	20	21	15	20	22	17	29	0	0	17	
T1167	T1-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS	20	21	15	20	22	17	29	0	0	17	
T1168	T1-10 DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS	20	21	15	20	28	17	29	0	0	17	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

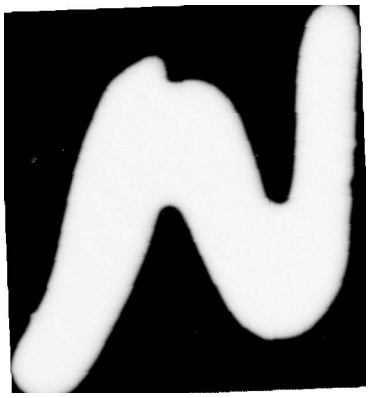
	DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
T1169	T1-11 DO YOU USE OR REFER TO FAR REGION	7	8	0	15	6	0	7	0	0	0	
T1170	T1-12 DO YOU USE OR REFER TO INTERMEDIATE REGION	7	7	8	15	6	17	7	0	0	0	
T1171	T1-13 DO YOU USE OR REFER TO NEAR REGION	6	7	0	15	6	0	7	0	0	0	
T1172	T1-14 DO YOU USE OR REFER TO MICRON	12	12	8	15	17	17	21	0	0	0	
T1173	T1-15 DO YOU USE OR REFER TO GRAY BODIES	3	3	0	10	6	0	0	0	0	0	
T1174	T1-16 DO YOU USE OR REFER TO BLACK BODIES	5	5	0	10	6	0	7	0	0	0	
T1175	T1-17 DO YOU USE OR REFER TO ABSORPTION	13	14	8	15	17	17	21	0	0	0	
T1176	T1-18 DO YOU USE OR REFER TO SCATTERING	11	12	0	15	11	0	21	0	0	0	
T1177	T1-19 DO YOU USE OR REFER TO ABSOLUTE ZERO	9	9	8	15	11	17	7	0	0	0	
T1178	T1-20 DO YOU PERFORM TASKS ON BLITZ	2	2	0	5	0	0	7	0	0	0	
T1179	T1-21 DO YOU PERFORM TASKS ON TARGET BUTTONS	2	2	0	5	0	0	7	0	0	0	
T1180	T1-22 DO YOU PERFORM TASKS ON ERECTOR LENSES	3	3	0	10	0	0	7	0	0	0	
T1181	T1-23 DO YOU PERFORM TASKS ON OCULAR LENSES	7	8	0	15	6	0	7	0	0	0	
T1182	T1-24 DO YOU PERFORM TASKS ON CORRECTION LENSES	4	4	0	15	0	0	7	0	0	0	
T1183	T1-25 DO YOU PERFORM TASKS ON FILTERS	12	11	15	15	6	17	21	0	0	17	
T1184	T1-26 DO YOU PERFORM TASKS ON SPHERICAL MIRRORS	8	8	8	10	0	17	21	0	0	0	
T1185	T1-27 DO YOU PERFORM TASKS ON PLANE MIRRORS	8	8	8	10	6	17	21	0	0	0	
T1186	T2-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS	9	8	15	5	11	0	29	0	0	17	
T1187	T2-02 DO YOU INSPECT LASER SYSTEMS	9	8	15	5	11	0	29	0	0	17	
T1188	T2-03 DO YOU CLEAN LASER SYSTEMS	8	7	15	5	6	0	29	0	0	17	LASERS
T1189	T2-04 DO YOU OPERATE LASER SYSTEMS	7	7	8	5	6	0	29	0	0	0	
T1190	T2-05 DO YOU OPERATE LASER SYSTEMS	6	5	8	5	0	0	29	0	0	0	
T1191	T2-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS	7	5	15	5	0	0	29	0	0	17	
T1192	T2-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS	6	5	8	5	0	0	29	0	0	0	
T1193	T2-08 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS	6	5	8	5	0	0	29	0	0	17	
T1194	T2-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS	7	5	15	5	0	0	29	0	0	17	
T1195	T2-10 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS	6	5	8	5	0	0	29	0	0	17	
T1196	T2-11 DO YOU USE OR REFER TO ANGSTROMS (A)	4	4	0	5	6	0	14	0	0	0	
T1197	T2-12 DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS	4	4	0	5	6	0	14	0	0	0	
T1198	T2-13 DO YOU USE OR REFER TO GROUND STATE	4	4	0	5	6	0	14	0	0	0	
T1199	T2-14 DO YOU USE OR REFER TO EXCITED STATE	3	3	0	5	0	0	14	0	0	0	
T1200	T2-15 DO YOU USE OR REFER TO PACKET OF RADIATION	3	3	0	5	0	0	14	0	0	0	
T1201	T2-16 DO YOU USE OR REFER TO PHOTONS	3	3	0	5	0	0	14	0	0	0	
T1202	T2-17 DO YOU USE OR REFER TO SPONTANEOUS EMISSION	4	4	0	5	0	0	21	0	0	0	
T1203	T2-18 DO YOU USE OR REFER TO STIMULATED EMISSION	4	4	0	5	0	0	21	0	0	0	
T1204	T2-19 DO YOU USE OR REFER TO COHERENCE OR INCOHERENCE	3	3	0	5	0	0	14	0	0	0	
T1205	T2-20 DO YOU USE OR REFER TO INVERSION LEVEL	3	3	0	5	0	0	14	0	0	0	
T1206	T2-21 DO YOU USE OR REFER TO MONOCHROMATIC	4	4	0	5	6	0	14	0	0	0	
T1207	T2-22 DO YOU WORK WITH ACTIVE MATERIALS	2	2	0	5	0	0	7	0	0	0	
T1208	T2-23 DO YOU WORK WITH PUMPING SOURCES	3	3	0	5	6	0	7	0	0	0	
T1209	T2-24 DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS	3	3	0	5	6	0	7	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK	SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
T1210 T2-25 DO YOU WORK WITH HALF SILVERED (92% REFLECTIVE) MIRRORS	3	3	0	5	6	0	7	0	0	0	
T1211 T2-26 DO YOU WORK WITH HELICAL FLASHTUBES	3	3	0	5	6	0	7	0	0	0	
T1212 T2-27 DO YOU WORK WITH RUBY	3	3	0	5	6	0	7	0	0	0	
T1213 T2-28 DO YOU WORK WITH HELIUM-NEON	2	2	0	5	0	0	7	0	0	0	
T1214 T2-29 DO YOU WORK WITH HELIUM-XENON	2	2	0	5	0	0	7	0	0	0	
T1215 T2-30 DO YOU WORK WITH XENON	2	2	0	5	0	0	7	0	0	0	
T1216 T2-31 DO YOU WORK WITH CESIUM-HELIUM	2	2	0	5	0	0	7	0	0	0	
T1217 T2-32 DO YOU WORK WITH ARGON	2	2	0	5	0	0	7	0	0	0	
T1218 T2-33 DO YOU WORK WITH NEODYMIUM IN GLASS	3	3	0	5	0	0	7	6	0	0	
T1219 T2-34 DO YOU WORK WITH GALLIUM ARSENIDE	2	2	0	5	0	0	7	0	0	0	
T1220 T3-01 IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES, SUCH AS DIRECT VIEW STORAGE (DVST) OR MULTIPLE MODE STORAGE TUBES (MMST)	13	15	0	25	6	0	36	12	0	0	
T1221 T3-02 DO YOU INSPECT DVST OR MMST	13	14	0	20	6	0	36	12	0	0	DISPLAY TUBES
T1222 T3-03 DO YOU CLEAN DVST OR MMST	12	13	0	20	6	0	29	12	0	0	
T1223 T3-04 DO YOU ADJUST OR CALIBRATE DVST OR MMST	12	13	0	20	0	0	36	12	0	0	
T1224 T3-05 DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST	13	15	0	20	6	0	29	12	0	0	
T1225 T3-06 DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS	13	14	0	20	6	0	36	12	0	0	
T1226 T3-07 DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS	13	14	0	20	6	0	36	12	0	0	
T1227 T3-08 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF DVST	9	10	0	15	6	0	29	6	0	0	
T1228 T3-09 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF MMST	7	8	0	15	6	0	14	6	0	0	
T1229 T3-10 DO YOU PERFORM TASKS ON FLOOD GUNS	8	9	0	15	11	0	14	6	0	0	
T1230 T3-11 DO YOU PERFORM TASKS ON WRITE GUNS	8	9	0	15	11	0	14	6	0	0	
T1231 T3-12 DO YOU PERFORM TASKS ON ATTACK GUNS	7	8	0	15	11	0	7	6	0	0	
T1232 T3-13 DO YOU PERFORM TASKS ON ERASE GUNS	6	7	0	15	6	0	7	6	0	0	
T1233 T3-14 DO YOU PERFORM TASKS ON STORAGE GRIDS	10	11	0	25	6	0	21	6	0	0	
U1234 U1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY PROGRAMMING TASKS	1	1	0	0	0	0	7	0	0	0	
U1235 U1-02 DO YOU USE OR REFER TO DECIMAL SYSTEMS	3	3	0	5	6	0	7	0	0	0	PROGRAMMING
U1236 U1-03 DO YOU USE OR REFER TO PROGRAMS	3	3	0	5	6	0	7	0	0	0	
U1237 U1-04 DO YOU USE OR REFER TO HEXIDECIMAL SYSTEMS	3	3	0	5	6	0	7	0	0	0	
U1238 U1-05 DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS	2	2	0	5	0	0	7	0	0	0	
U1239 U1-06 DO YOU USE OR REFER TO FOUR SYSTEMS	2	2	0	5	0	0	7	0	0	0	
U1240 U1-07 DO YOU USE OR REFER TO BINARY SYSTEMS	2	2	0	5	0	0	7	0	0	0	
U1241 U1-08 DO YOU USE OR REFER TO TIME-SHARING	2	2	0	5	0	0	7	0	0	0	
U1242 U1-09 DO YOU USE OR REFER TO DATA WORDS	3	3	0	5	6	0	7	0	0	0	
U1243 U1-10 DO YOU USE OR REFER TO ADDRESS WORDS	3	3	0	5	6	0	7	0	0	0	
U1244 U1-11 DO YOU USE OR REFER TO ADDRESS/SUBADDRESS	3	3	0	5	6	0	7	0	0	0	
U1245 U1-12 DO YOU USE OR REFER TO STEERING/INFORMATION	3	3	0	5	6	0	7	0	0	0	
U1246 U1-13 DO YOU USE OR REFER TO INFORMATION WORDS	3	3	0	5	6	0	7	0	0	0	
U1247 U1-14 DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING	2	2	0	5	0	0	7	0	0	0	
U1248 U1-15 DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING	2	2	0	5	0	0	7	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

DY-TSK		SPC 001	SPC 002	SPC 003	SPC 004	SPC 005	SPC 006	SPC 007	SPC 008	SPC 009	SPC 010	
U1249	U1-16 DO YOU PERFORM TASKS ON INPUT DEVICES	2	2	0	5	0	0	7	0	0	0	
U1250	U1-17 DO YOU PERFORM TASKS ON STORAGE DEVICES	3	3	0	5	6	0	7	0	0	0	
U1251	U1-18 DO YOU PERFORM TASKS ON ARITHMETIC SECTIONS	3	3	0	5	6	0	7	0	0	0	
U1252	U1-19 DO YOU PERFORM TASKS ON CONTROL SECTIONS	4	4	0	5	6	0	7	6	0	0	
U1253	U1-20 DO YOU PERFORM TASKS ON OUTPUT DEVICES	4	4	0	5	6	0	7	6	0	0	
U1254	U1-21 DO YOU PERFORM TASKS ON POWER SUPPLIES	5	5	0	5	6	0	7	12	0	0	
U1255	U2-01 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION	50	52	38	55	67	50	57	35	14	33	
U1256	U2-02 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS	22	25	0	40	39	0	21	0	0	0	DB AND POWER RATIOS
U1257	U2-03 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS	21	24	0	40	39	0	21	0	0	0	
U1258	U2-04 DUMMY TASK TO IDENTIFY INCUMBENTS WHO PERFORMED NO TASKS	0	0	0	0	0	0	0	0	0	0	



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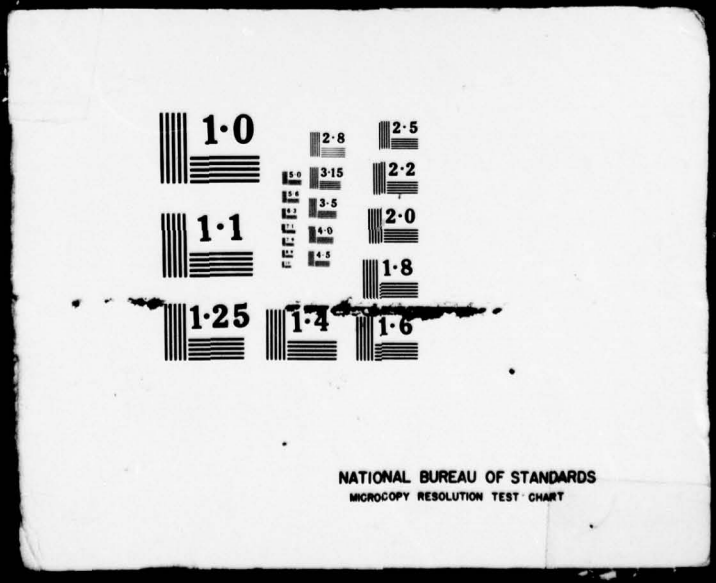

SUPPLEMENTARY

INFORMATION

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A048 678

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER AFPT 90-403-222	2. GOVT ACCESSION NO. AD A048 678	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Biomedical Equipment Maintenance Specialist AFSC 40350		5. TYPE OF REPORT & PERIOD COVERED FINAL Jul 77 - Sept 77 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Thomas J. O'Connor John X. Olivo		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Occupational Survey Branch USAF Occupational Measurement Center Lackland AFB TX 78236		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS N/A
11. CONTROLLING OFFICE NAME AND ADDRESS SAME AS ITEM 9		12. REPORT DATE 26 October 1977 13. NUMBER OF PAGES 44
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Electronic principles	Electronics
Basic electronics	Air Force Training
Avionics	Teaching methods
Electronic equipment	Training
Electronic technicians	

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Biomedical Equipment Maintenance Specialist (AFSC 40350). This report gives a detailed listing of the technical tasks and knowledge needed to perform the jobs within the specialty or career ladder.

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This specialty has the following functions:

Installs, inspects, repairs, calibrates, and modifies biomedical equipment and support systems and advises concerning theory of operation, underlying physiological principles, and safe clinical application of biomedical equipment. Performs proper inspection and maintenance on biomedical equipment and support systems. Repairs, calibrates, modifies and installs biomedical equipment and support equipment systems. Maintains inspection and repair records. Supervises biomedical equipment maintenance personnel.